

HANDLE WITH CARE

**NEISE
MODERN TOOLS**

**PRESENTS
YOUR CASE
OF QUALITY
TOOLS AND
INSTRUMENTS**

KARL A. NEISE, INC. 56-02 ROOSEVELT AVE., WOODSIDE, N.Y. 11377 — Phone: (212) 446-7799

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Gentlemen:

Between these covers is a fine collection of machine tool accessories, which will give you the type of performance and accuracy you have learned to expect from us.

Please examine these pages. We are certain our tools can help you efficiently and economically in your production, tooling and inspection departments.

All of our items carry factory approved service and the guarantee of KARL A. NEISE.

We welcome inquiries on the application and function of our products and will be pleased to help you with your problems.

Cordially,

KARL A. NEISE, INC.

A. Scholl,
President

AS:acj

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Between the two, the collector is a much more important factor in the selection of the type of material to be used.

It is also important to note that the collector is a much more important factor in the selection of the type of material to be used.

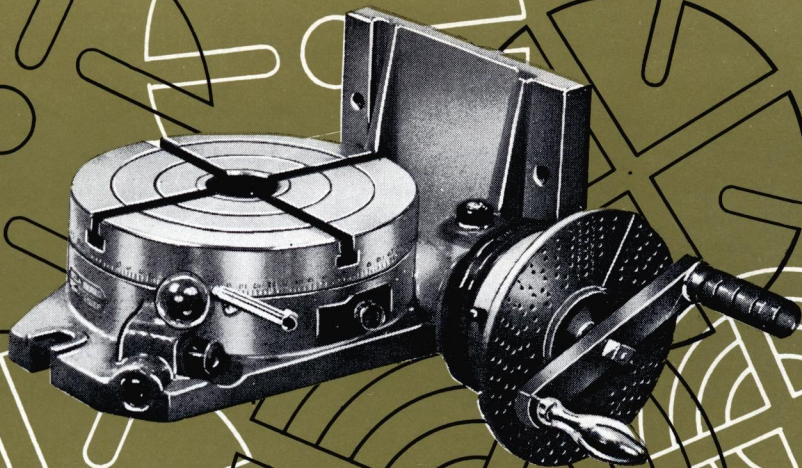
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**NEISE
MODERNTOOLS**

Precision

ROTARY TABLES

with Vernier Optical and Electronic Readings

ANGLE WORK TABLES

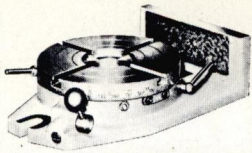
DIVIDING HEADS

KARL A. NEISE, INC.

56-02 ROOSEVELT AVENUE WOODSIDE, NEW YORK 11377 (Area Code 212) 446-7799

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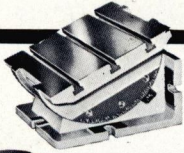
TABLE OF CONTENTS



VTA — Vertical-Horizontal Indexing Head.

Direct 24 hole indexing or degree indexing. Chuck and Drilling Fixture Available.
Direct indexing accuracy: ± 40 seconds. Two sizes: 5½" & 7⅞" dia.

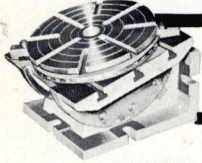
Page 3 & 4



WT — Vertical-Horizontal Angle Table.

Tilts 90° (8" tilts 60°) Heavy duty. Accurate to .0007". Six sizes: Square work surface 8", 10", 12", 16", 20" & 24".

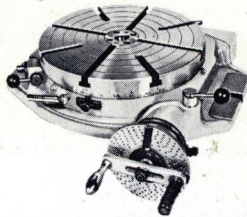
Page 5



WTR —

Same as above but with additional Rotary Plate permitting Compound Angles.

Page 6



RTH — Horizontal Rotary Table.

Four methods of positioning:

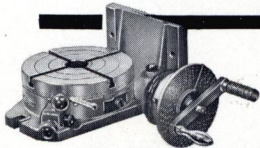
1. with graduated drum and vernier to 6 seconds
2. with indirect hole plates
3. with 360° graduations on periphery of table
4. with built in hole plate for direct indexing

Indirect dividing accuracy: ± 30 seconds.

Direct indexing accuracy: ± 40 seconds.

Six sizes: 8", 10", 12", 14", 18" & 24".

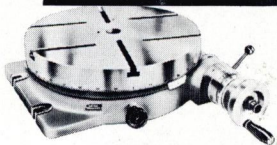
Page 7 & 8



RTHV — Horizontal-Vertical Rotary Table.

Same four methods of positioning as with RTH. Chuck and Drilling Fixture Available.
Same accuracy as RTH. (8" & 12" Sizes)

Page 9 & 10



RTHP — Super Accurate Horizontal Rotary Table.

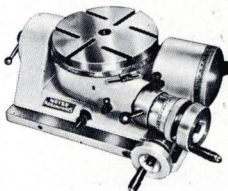
Two methods of positioning:

1. with graduated drum and vernier to 2 seconds
2. with indirect hole plates

Dividing accuracy: ± 10 seconds

Five sizes: 10", 12", 14", 16" & 20"

Page 11 & 12



RTTP — Super Accurate Tilting Rotary Table.

Rotary positioning with graduated drum and vernier to 2 seconds. Tilting positioning to 30 seconds with vernier. Dividing accuracy: ± 10 seconds. Tilting accuracy: ± 30 seconds. Two sizes: 10" & 14".

Page 13 & 14



RTO — Optical Vertical-Horizontal Rotary Table.

Reads to 1 second on optical scale. Built in Hydraulic tension and friction removal device. Dividing accuracy: $\pm 1\frac{1}{2}$ seconds of arc. Two sizes: 12" & 16".

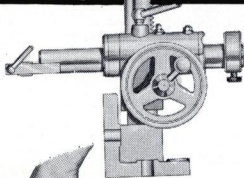
Page 15 & 16



ERTO — Electronic Read-Out Rotary Table.

Same construction as Optical Table above. Optics are replaced by inductosyn type of equipment by Olivetti. Mechanical dividing accuracy: ± 1 seconds of arc. Read out discrimination: .0001 degree or .360 sec. of arc.

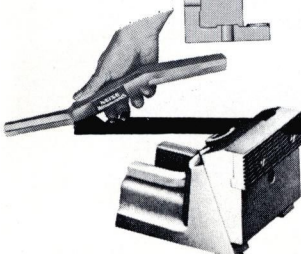
Page 17 & 18



DFRT — Drilling Fixture.

Heavy duty universal to be used with all rotary tables and indexing heads. Extends versatility of machines and accessories.

Page 19



Anti-Knucklebuster.

Knuckle saving lever for free-wheeling tables. A safety tool for hoisting and lifting tables on and off machines. One provided as standard equipment with each rotary table.

Master Gripping Jaws and Slimline

Universal work holding clamps. Replace chucks and provide exceptionally powerful grip on low work pieces. 3 sizes available.

Page 20

Mini Might-Tee

Tee slot clamps provide exceptionally powerful grip on work pieces as thin as a dime. 6 sizes available.

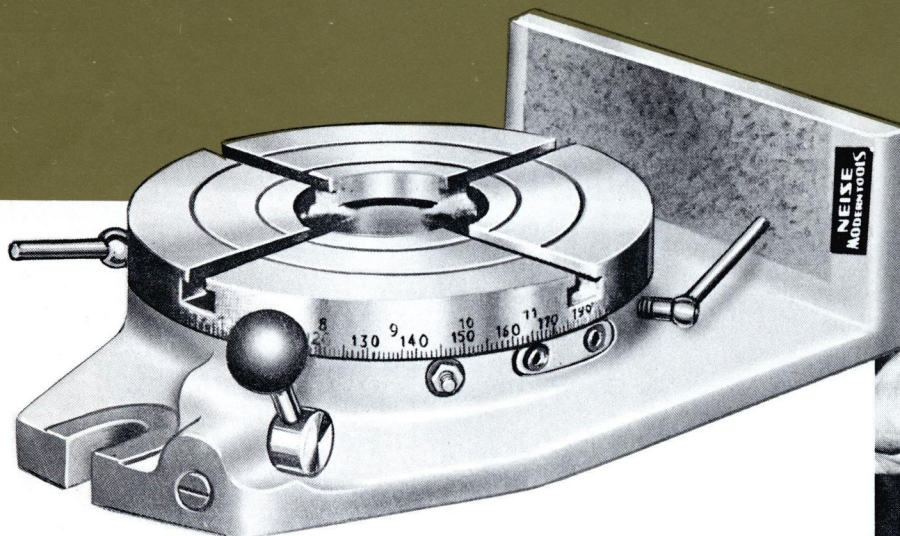
3-D Gripping Jaws

Grip in three directions

**NEISE
MODERNTOOLS**

PRECISION DIVIDING HEADS

Horizontal/Vertical Indexing and Dividing Head Model VTA



VTA Dividing Head is particularly suitable for indexing on drilling machines, boring machines, milling machines, slotting machines, or any positioning application in general machining and inspection.

Quick indexing of the rotary table by hand cuts production time. We supply for the VTA a wide range of accessories such as three jaw chucks, cover plates, morse taper holder, collet chucks, drilling fixtures, etc., all of which considerably increase the application range of the VTA Dividing Head.

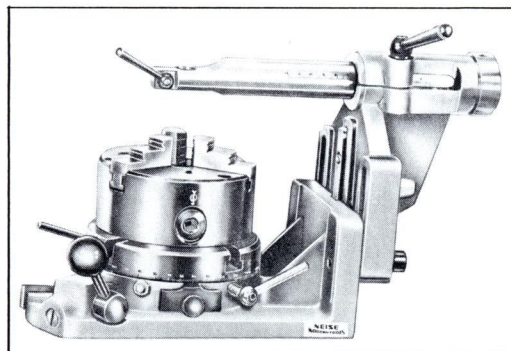
With every VTA Dividing Head, we supply a standard 24 hole index plate. This meshes with an oversize index pin. The VTA is clamped distortion-free. The VTA Rotary Table has a recess and cylindrical center bore to facilitate mounting of collet devices and other fixtures. The Rotary Table has a 360° graduation with adjustable zero point.

The index can be disengaged and table can be free-wheeled by hand using the Neise Moderntools Anti-Knucklebuster provided.

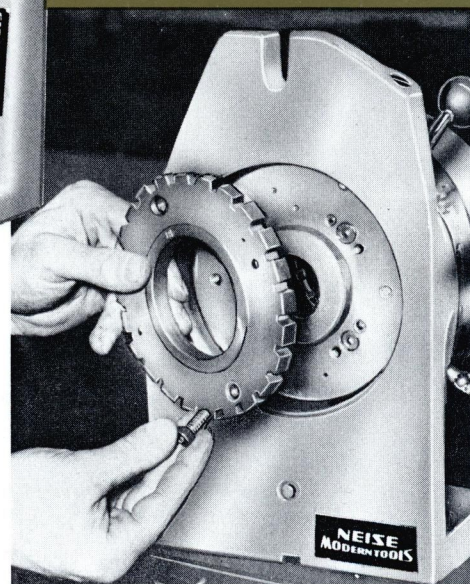
GUARANTEED ACCURACY

Direct Dividing
 ± 40 seconds

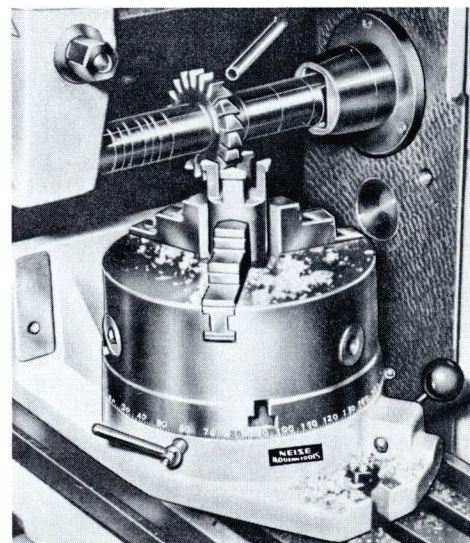
**LOW COST!
VERSATILE!**



VTA dividing head (3-jaw chuck and drilling fixture supplied as special accessories).



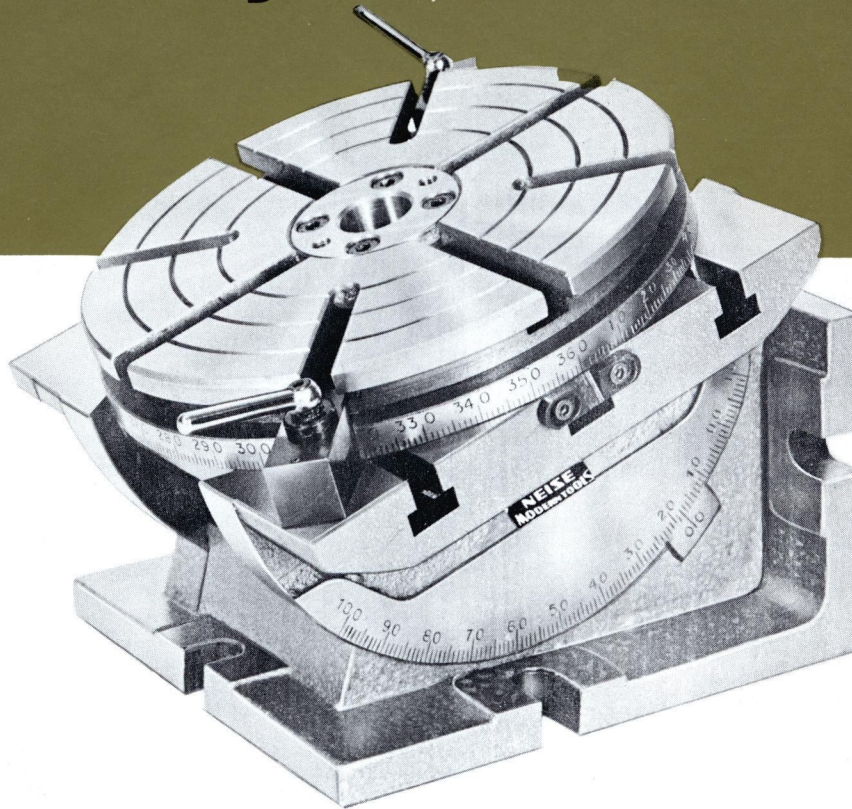
Mounting a cover plate for the eight position index thus eliminating the possibility of faulty indexing.



VTA with 3 jaw chuck milling a clamping device.

SEE REVERSE SIDE FOR COMPLETE SPECIFICATIONS

Vertical/Horizontal Swivel Angle Table with Rotary Plate Model WTR



NEISE MODERNTOOLS Precision Machine Tool Tables are heavy-duty and precisely machined. All working surfaces are guaranteed accurate to .0007" or better. Vee guides are scraped and table surfaces and clamping surfaces are accurately ground. An angular scale is provided for tilt adjustment. Three bolts quickly and positively clamp the table in any position desired. Angular adjustability of all models is 90 degrees.

The WT and WTR models can be used in the horizontal and vertical planes which further extends their machine tool, layout and inspection applications.

Rotary Plate on model WTR permits compound angles for greater versatility. Rotary Plate can be easily removed for simple operation as model WT.

The Rotary Plate can be easily free wheeled by hand with the Neise Moderntools Anti-Knucklebuster provided.

MODEL	SIZE TABLE AREA	TOTAL HEIGHT	T-SLOTS & WIDTH		BASE AREA		WEIGHT (LBS.)
					HORIZ.	VERT.	
WTR	10" Diameter	7"	4	.472"	10"x9"	6"x9"	83
WTR	12" Diameter	8"	4	.551"	12"x11"	6"x11"	123
WTR	16" Diameter	10.5"	4	.551"	15"x12"	8"x12"	231
WTR	20" Diameter	13"	4	.629"	18"x15"	9"x15"	381
WTR	24" Diameter	12.5"	4	.629"	21"x18"	10"x18"	609

**NEISE
MODERNTOOLS**

PRECISION ROTARY TABLES

Horizontal Rotary Precision Model RTH



GUARANTEED ACCURACY

Surface Parallelism	$\pm .0002''$
Concentricity of Morse Taper	$\pm .0002''$
Direct Dividing	$\pm 40 \text{ sec.}$
Indirect Dividing	$\pm 30 \text{ sec.}$

- These models are ruggedly built, yet are suitable for high precision work. They offer very low construction height.

- The center pivot of the table is tapered. This ground taper pivot bearing is **two-thirds the size of the table's diameter** giving it unusual stability and insuring extreme angular accuracy of rotation at the outer diameter of the table.

- The two clamping levers securely lock the table vertically without distorting its setting.

- **EACH TABLE IS EQUIPPED SO THAT YOU CAN USE FOUR DIFFERENT METHODS OF POSITIONING:**

1. With large, easy to read, graduated drum. Direct reading is one minute—six seconds with Vernier.
2. With complete indirect dividing assembly, sector arms, crank, disc and dividing chart.
3. With 360° divisions on the periphery of the table including adjustable Zero mark.
4. With direct indexing, for rapid, accurate positioning using a tapered self-compensating index bolt.

10" size — 12 positions
8", 12" and larger sizes — 24 positions

The worm is completely hardened and ground. The worm gear is made of Meehanite type semi-steel.

Both worm and gear are manufactured very precisely to assure long lasting precision of the Rotary Table.

The worm drive can be easily and rapidly disengaged for free-wheeling by hand or for the direct dividing index by using the Neise Moderntools Anti-Knucklebuster provided.

The tables have a completely encircling coolant channel which lets the coolant run off quickly to the machine table, so that it cannot contaminate internal table lubrication.

All table bearings and worm bearings can be adjusted for wear. The meshing of the worm with the worm gear is also adjustable.

EXTRA FACTORY FITTED ACCESSORY

3 or 4-Jaw Chuck—The Chuck is fitted to the table at the factory with a recessed groove to assure accuracy. It can easily be removed from the top of the table without removing the Rotary Table from its position on the machine.

ANOTHER NEISE MODERNTOOLS FIRST!

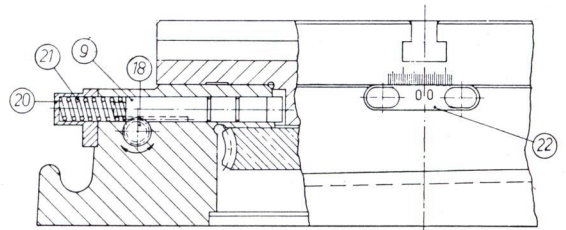
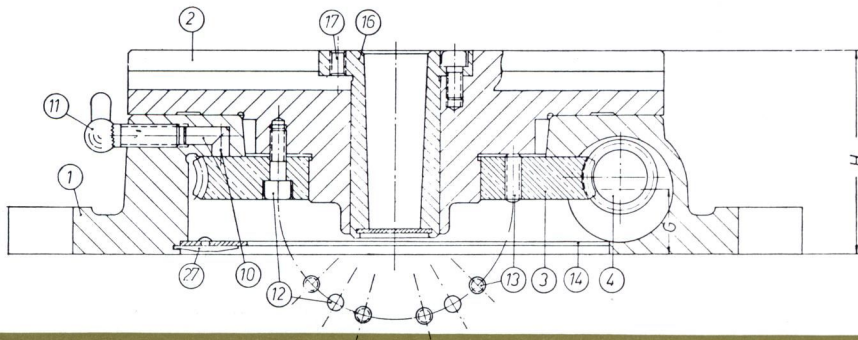
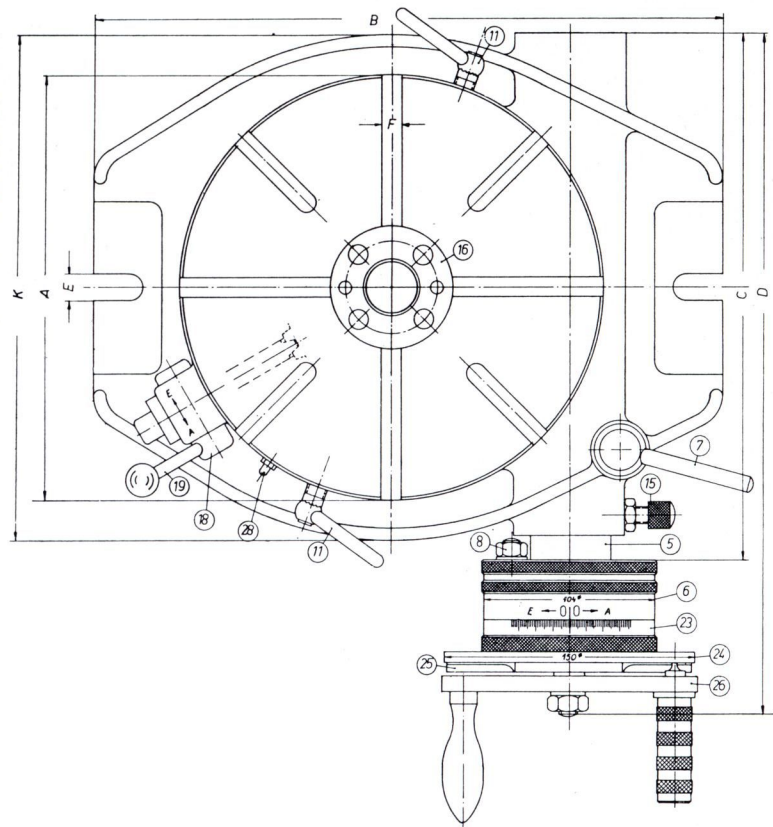
8" table can be used for both right or left hand operation. Hand wheel, worm and dials can be reversed to fit your machine. No coolant channel on 8" size.

SEE REVERSE SIDE FOR COMPLETE SPECIFICATIONS

PRECISION HORIZONTAL ROTARY TABLE MODEL RTH

DESIGNATION OF INDIVIDUAL PARTS

- 1) Baseplate
- 2) Turn Table
- 3) Worm Gear
- 4) Worm Shaft
- 5) Eccentric Bushing
- 6) Carrier for Indexing Attachment & Vernier Drum
- 7) Worm Clamping Handle
- 8) Clamping Screw for Indexing Plate
- 9) Direct Indexing Pin
- 10) Angular Clamping Piece
- 11) Table Clamping Lever
- 12) Locking Screws
- 13) Headless Allen Set Screws
- 14) Sheet Metal Cover
- 15) Knurled Adjusting Screw Stop
- 16) M. T. 4 Taper Insert
- 17) Removal Screws for Taper Insert
- 18) Pinion for Direct Indexing
- 19) Direct Index Lever
- 20) Spring Cap for Direct Indexing Pin
- 21) Pressure Spring
- 22) Adjustable Zero Mark
- 23) Graduated Dial
- 24) Index Plate
- 25) Sector Arms
- 26) Dual Crank
- 27) Sheet Metal Latches
- 28) Grease Nipple



DIMENSIONS (Inches)

SIZE A	B	C	D	E	F	G	H	K	Gear Ratio	Morse Taper	WEIGHT (LBS.)
8"	11 ²⁷ / ₃₂	9 ¹⁵ / ₃₂	13 ²⁵ / ₆₄	.670	.473	—	3 ³ / ₃₂	8 ¹ / ₁₆	1:90	*	57
10"	14 ¹ / ₂	12 ¹³ / ₁₆	16 ¹ / ₂	.709	.473	1.180	3 ³ / ₄	11 ¹³ / ₁₆	1:90	4	91
12"	16 ¹⁵ / ₁₆	14 ²⁷ / ₆₄	18 ¹ / ₂	.709	.473	1.260	4 ¹ / ₈	13 ²⁵ / ₃₂	1:90	4	128
14"	19 ¹¹ / ₁₆	16 ¹ / ₂	20 ¹⁵ / ₃₂	.709	.551	1.260	4 ¹¹ / ₃₂	15 ³ / ₄	1:90	4	165
18"	24 ⁷ / ₁₆	20 ⁷ / ₈	24 ¹³ / ₁₆	.788	.630	1.420	4 ¹⁵ / ₁₆	19 ¹¹ / ₁₆	1:90	4	297
24"	31 ³ / ₃₂	26	30	.866	.709	1.457	5 ²⁹ / ₃₂	25 ¹ / ₃₂	1:120	4	638

*cylindrical bore

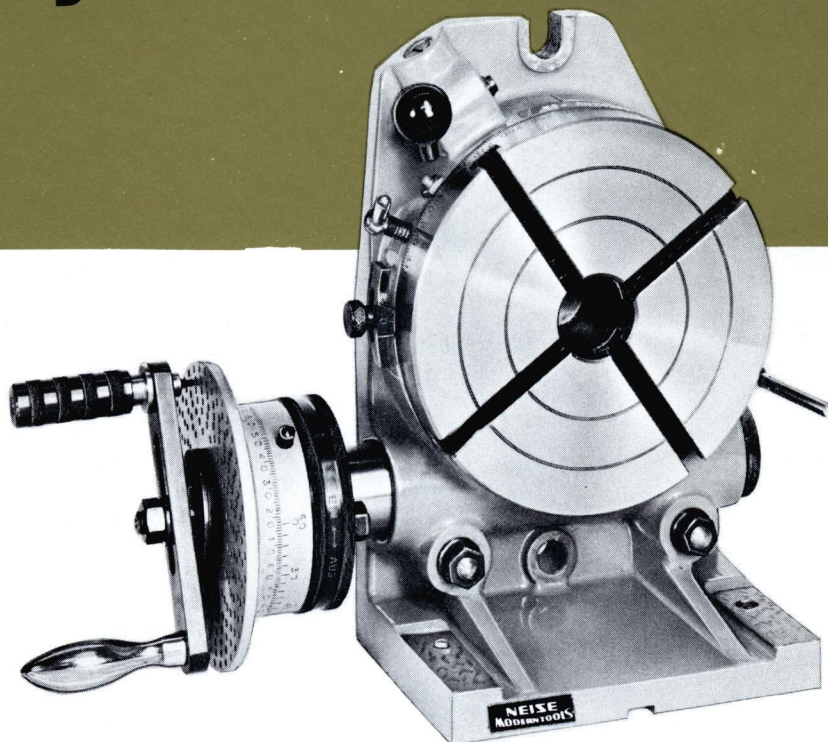
SIZES: 8" diameter 14" diameter
 10" diameter 18" diameter
 12" diameter 24" diameter

Set of four additional indirect dividing discs available

KARL A. NEISE, INC.

56-02 ROOSEVELT AVENUE • WOODSIDE, NEW YORK 11377

Horizontal/Vertical Rotary Precision Model RTHV



THE NEW RTHV TABLE FOR HORIZONTAL AND VERTICAL USE

Hand wheel can be used for either left or right hand mounting.

GUARANTEED ACCURACY

90° Square	± .0002"
Surface Parallelism	± .0002"
Thru bore runout	± .0002"
Direct Dividing	± 40 sec.
Indirect Dividing	± 30 sec.

These models are ruggedly built, yet are suitable for high precision work. They offer very low construction height and rigid vertical operation.

The center pivot of the table is tapered. This ground taper pivot bearing is two-thirds the size of the table's diameter. This, plus a ball thrust bearing, gives it unusual stability and insures extreme angular accuracy of rotation at the outer diameter of the table.

The two clamping levers securely lock the table without distorting its setting.

EACH TABLE IS EQUIPPED SO THAT YOU CAN USE FOUR DIFFERENT METHODS OF POSITIONING:

1. With large, easy to read, graduated drum. Direct reading is 1 min. Six seconds with Vernier.
2. With complete indirect dividing assembly, sector arms, crank, disc and dividing chart.
3. Adjustable Zero mark.
4. Direct indexing to 24 positions.

Hardened steel worm Meehanite semi-steel gear.

The worm drive can be easily and rapidly disengaged for free-wheeling by hand using the Neise Moderntools Anti-Knucklebuster provided.

All table bearings and worm bearings can be adjusted for wear. The meshing of the worm with the worm gear is also adjustable.

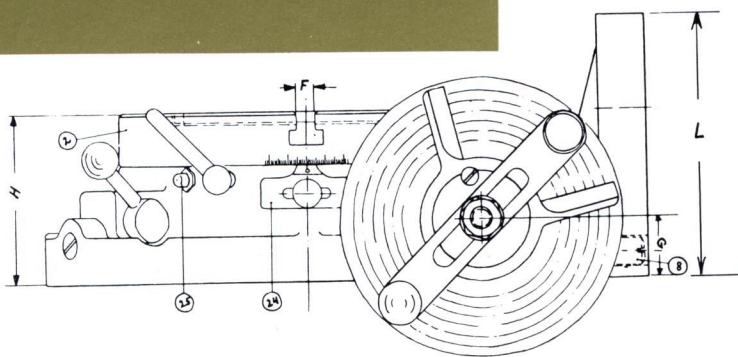
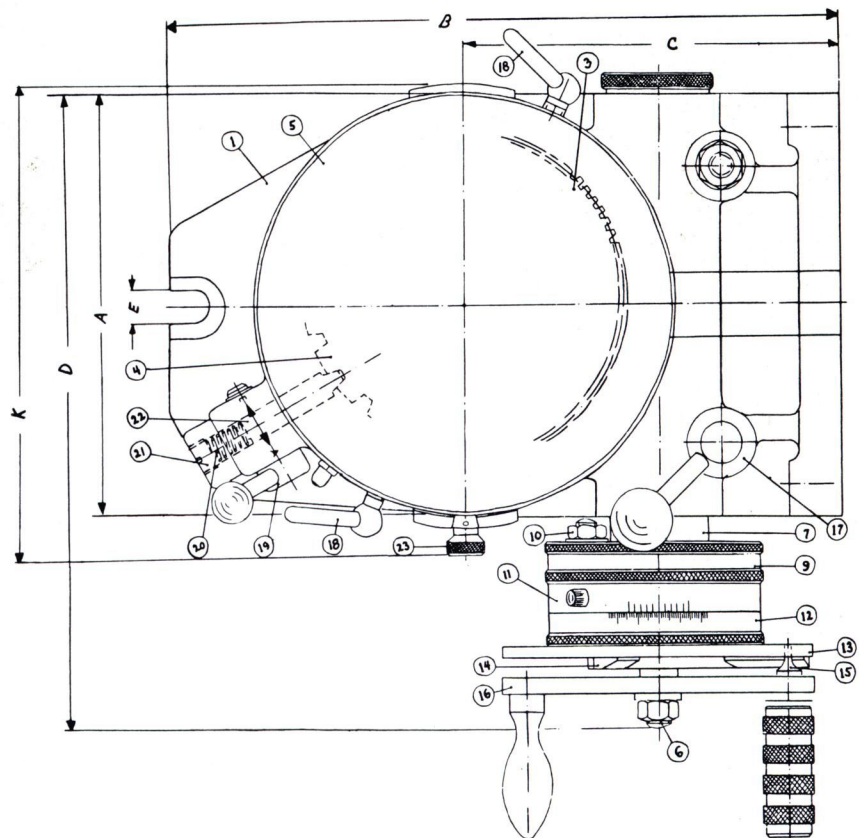
EXTRA ACCESSORIES

Special direct indexing plates, cover plates, additional indirect hole plates, factory fitted 3 or 4 jaw chuck, factory fitted drilling fixture.

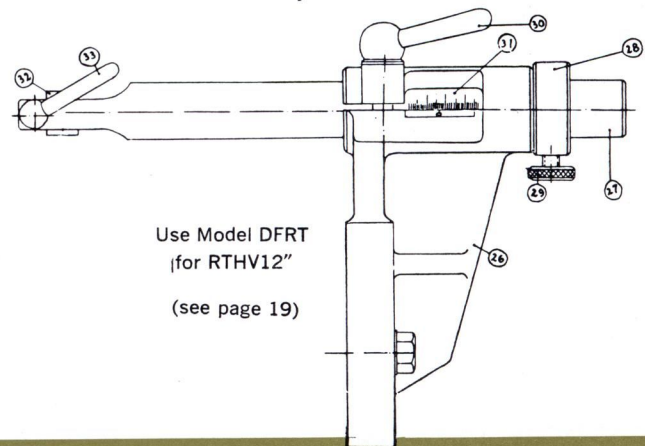
PRECISION HORIZONTAL/VERTICAL ROTARY TABLE MODEL RTHV

DESIGNATION OF INDIVIDUAL PARTS

- (1) Base Plate
- (2) Turntable
- (3) Worm Gear
- (4) Direct-Indexing Plate
- (5) Factory-Fitted Chuck
- (6) Worm Shaft
- (7) Eccentric Bushing
- (8) Eccentric Adjustment
- (9) Carrier for Indexing Attachment and Vernier Drum
- (10) Clamp Screw
- (11) Vernier Ring
- (12) Graduated Dial
- (13) Indirect Index Plate
- (14) Sector Arms
- (15) Indirect Index
- (16) Hand Wheel
- (17) Clamp for Worm Housing
- (18) Table Clamping Levers
- (19) Direct Indexing Lever
- (20) Pressure Spring
- (21) Pressure Spring Screw
- (22) Direct Index Pawl
- (23) Zero Adjustment
- (24) Zero Plate
- (25) Grease Fitting
- (26) Drilling Fixture
- (27) Drill Bushing Spindle
- (28) Adjusting Ring
- (29) Clamp Screw
- (30) Spindle Clamp
- (31) Spindle Scale
- (32) Drill Bushing
- (33) Bushing Clamp



Drill Fixture for RTHV8" only



Use Model DFRT
(for RTHV12"
(see page 19)

DIMENSIONS (Inches)

GEAR RATIO 1:90

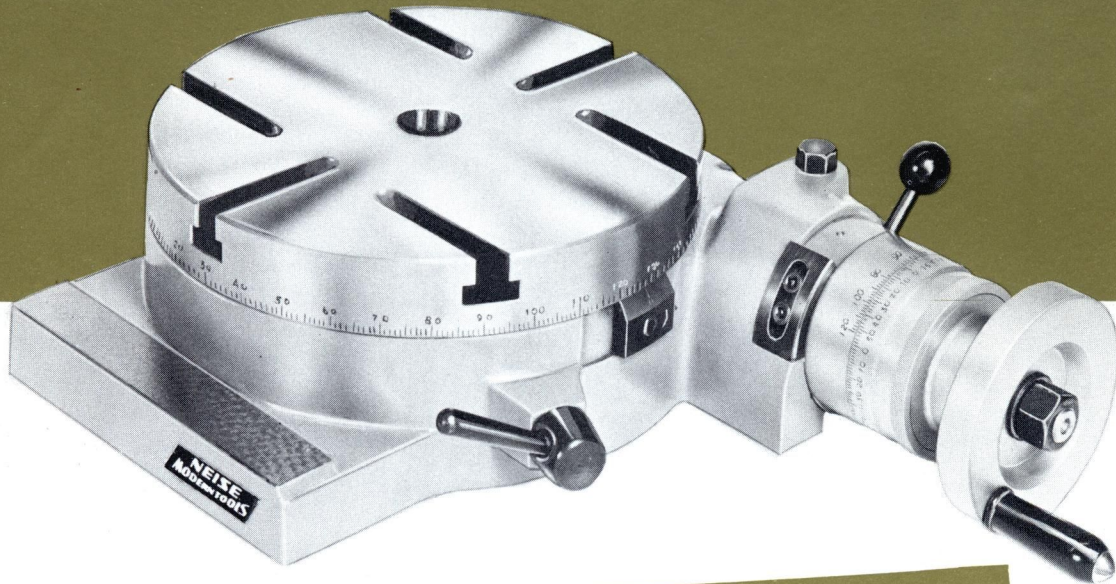
SIZE A	B	C	D	E	F	G	H	K	L	MORSE TAPER	WEIGHT (LBS.)
8"	11 ²⁵ / ₃₂ "	7 ¹ / ₈ "	11 ²⁵ / ₃₂ "	1 ¹ / ₁₆ "	3/8"	1 ¹ / ₄ "	3 ⁹ / ₁₆ "	8 ¹³ / ₁₆ "	5 ³ / ₄ "	*	67
12"	17 ⁵ / ₁₆ "	9 ¹ / ₁₆ "	18 ¹ / ₂ "	1 ¹ / ₁₆ "	15 ¹⁵ / ₃₂ "	1 ¹ / ₂ "	5 ²⁹ / ₃₂ "	13 ²⁵ / ₃₂ "	8 ⁵ / ₈ "	4	143

*Cylindrical Bore

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Super Accurate Horizontal Rotary Model RTHP



GUARANTEED ACCURACY

- Reading of the dial is 2 seconds with vernier.
- Tolerance of parallelism of the table to its base is $\pm .0002''$.
- Maximum spacing error over 360° is ± 10 seconds.

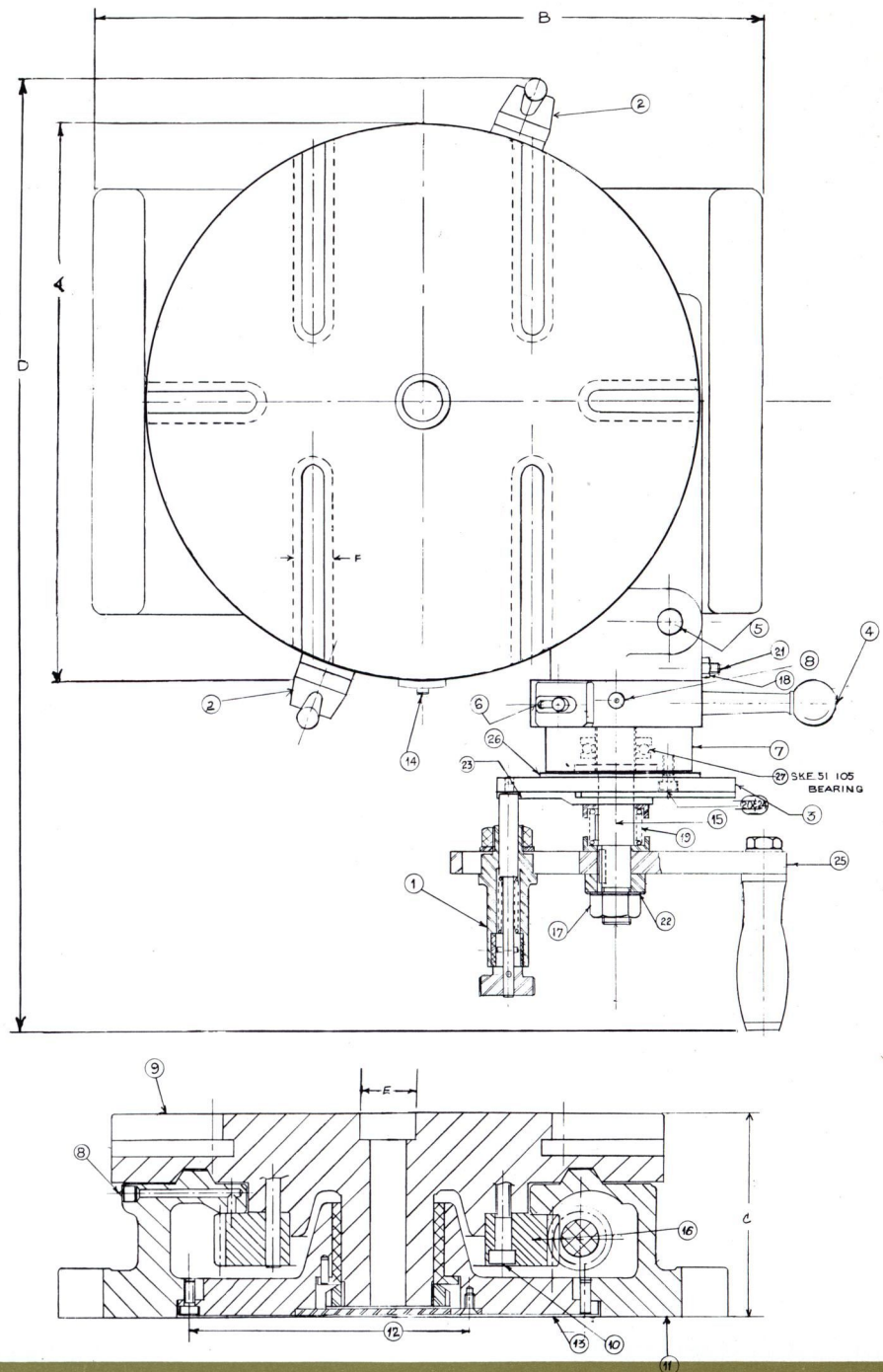
- This precise horizontal Rotary Table has a very low construction height.
- It incorporates a Vee type way for added stability and accuracy of the rotating surface. This V way is almost as large as the table diameter. With this type of way design, the table does not depend entirely on the small diameter of the center pivot as is the case in the usual construction. In other words, the larger the center pivot is in relation to the table diameter, the less error there will be in positioning.
- The Rotary Table is locked with two eccentric levers controlled externally by two opposite knobs.
- The heat treated worm and helical gear are ground on very high precision machines so that resulting model RTHP is assured highest accuracy.
- The worm drive can be easily and rapidly disengaged for free-wheeling by hand using the Neise Modern tools Anti-Knucklebuster provided.
- Two methods of positioning:
 - 1) With graduated drum reading is 2 seconds with vernier.
 - 2) With complete indirect dividing assembly, sector arms, crank, 3 discs and dividing chart (included with table).

SEE REVERSE SIDE FOR COMPLETE SPECIFICATIONS

SUPER ACCURATE HORIZONTAL ROTARY PRECISION MODEL RTHP

DESIGNATION OF INDIVIDUAL PARTS

1. Indirect dividing handle
2. Clamping lever
3. Indirect dividing hole plate
4. Worm eccentric lever
5. Eccentric bearing lock screw
6. Eccentric bearing stop
7. Vernier drum
8. Worm shaft lubrication fitting
9. Table
10. Worm Gear hold down screws
11. Base
12. Screws for the cover
13. Cover
14. Rotary table lubrication fitting
15. Worm shaft
16. Worm Gear
17. Nut
18. Lock nut
19. Spring
20. Screws for vernier drum
21. Clamping screw for lock nut
22. Spring spacers
23. Sector Arms
24. Screws for hole plate
25. Hand wheel
26. Graduated drum
27. Bearing SKF 51 105



DIMENSIONS (Inches)

MODEL	A	B	C	D	E	F	Ratio	WEIGHT (LBS.)
RTHP	10"	13"	4 $\frac{1}{4}$ "	16 $\frac{1}{4}$ "	$\frac{7}{8}$ "	$\frac{7}{16}$ "	1-60	99
RTHP	12"	14 $\frac{1}{2}$ "	4 $\frac{3}{4}$ "	20 $\frac{1}{8}$ "	$\frac{7}{8}$ "	$\frac{7}{16}$ "	1-60	138
RTHP	14"	16 $\frac{3}{4}$ "	5 $\frac{1}{4}$ "	22 $\frac{7}{8}$ "	$\frac{7}{8}$ "	$\frac{5}{8}$ "	1-90	215
RTHP	16"	17 $\frac{3}{8}$ "	5 $\frac{3}{8}$ "	22 $\frac{7}{8}$ "	$\frac{7}{8}$ "	$\frac{5}{8}$ "	1-90	242
RTHP	20"	22 $\frac{3}{4}$ "	6 $\frac{1}{16}$ "	28 $\frac{11}{32}$ "	1 $\frac{1}{2}$ "	$\frac{5}{8}$ "	1-120	440

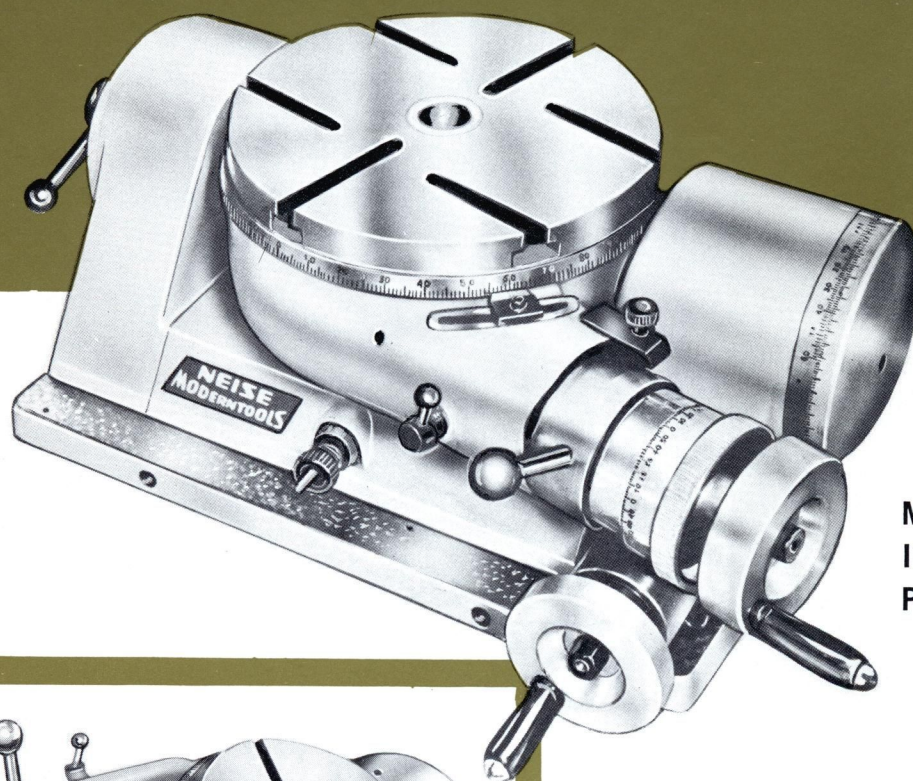
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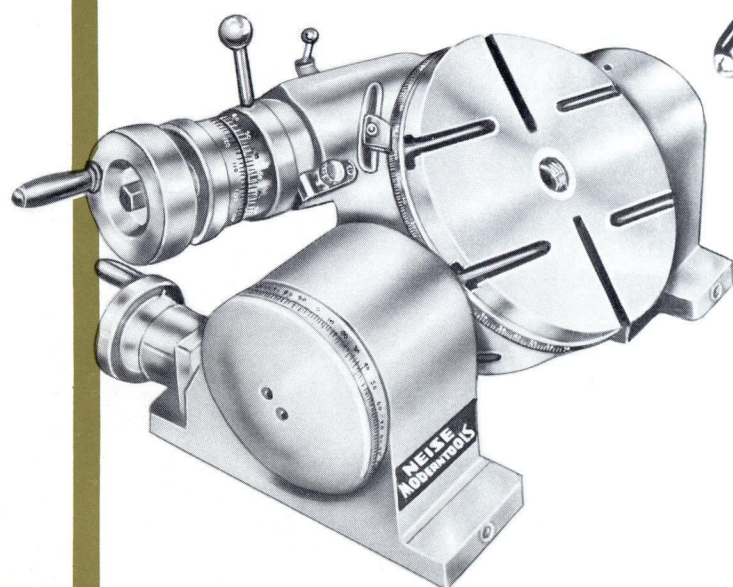
**NEISE
MODERNTOOLS**

PRECISION ROTARY TABLES

Super Accurate Tilting Rotary Model RTTP



**MODEL RTTP
IN HORIZONTAL
POSITION**



MODEL RTTP IN TILT POSITION

GUARANTEED ACCURACY

Reading of the dial for rotation.....2 sec.
with vernier

Tilting angle reading and accuracy
from large dial drum and vernier.....30 sec.

Parallelism of the table in
rotation and to its base..... $\pm .0002''$

Maximum spacing error over 360° is ± 10 sec.

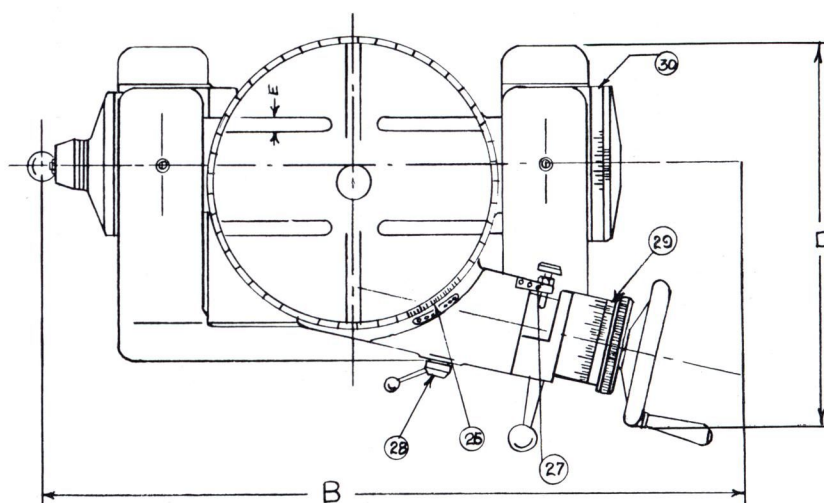
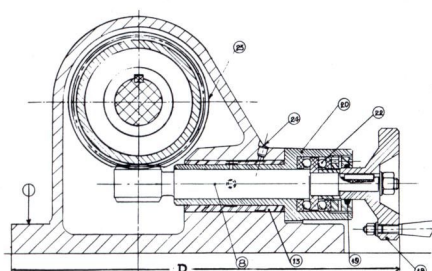
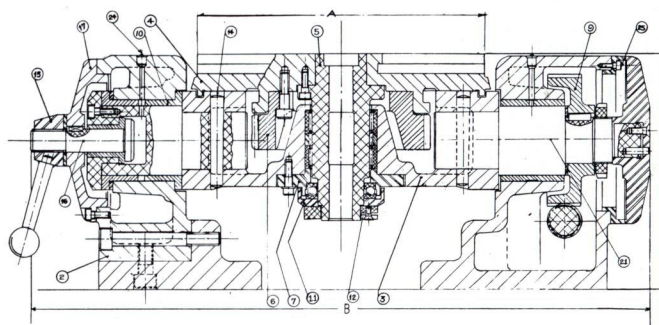
This precise rotary tilting table is center pivoted for excellent balance. This balanced construction eliminates the heavy internal stresses encountered with edge tilting types when lifting or lowering a heavy workpiece clamped to the table surface.

SEE REVERSE SIDE FOR COMPLETE SPECIFICATIONS

SUPER ACCURATE TILTING ROTARY PRECISION MODEL RTTP

DESIGNATION OF INDIVIDUAL PARTS

1. Base
2. Support
3. Arbor of Rotary Table
4. Table
5. Shaft
6. Worm Gear
7. Flange
8. Worm Shaft
9. Worm Gear — Tilt
10. Bearing
11. Cover
12. Ferrule
13. Eccentric Bearing
14. Dowel Pin
15. Clamp Lever
16. Clamp Shaft
17. Flange
18. Hand Wheel — Tilt
19. Seal
20. Eccentric Bushing
21. Arbor
22. Thrust Bearing
23. Worm Gear — Tilt
24. Grease Nipples
25. Screw to Fixed Vernier Drum
26. Adj. Table Vernier
27. Regulating Screw
28. Worm Shaft Clamp
29. Graduated Drum
30. Graduated Ring



DIMENSIONS (Inches)

Model	A	B	C	D	E	Ratio	WEIGHT (LBS.)
RTTP	10"	26"	8 $\frac{1}{4}$ "	14 $\frac{7}{8}$ "	$\frac{7}{16}$ "	1-60	225
RTTP	14"	30"	10 $\frac{1}{4}$ "	19 $\frac{7}{8}$ "	$\frac{7}{16}$ "	1-60	320

An adequate adjustable stop is provided to be able to repeat the horizontal and vertical positions. Locking of the rotating table surface is accomplished by a cam motion, pulling the table down on its own sliding surface without distortion or shifting angular position.

Locking of the tilted motion is accomplished with a lever which clamps a large diameter disc securely to its mating ground surfaces.

The heavy center shaft of the table is supported by a precision double row needle bearing, and a ball thrust controls the running clearance and permits the carrying of heavy loads.

The worm drive can be easily and rapidly disengaged for free-wheeling by hand using the Neise Moderntools Anti-Knucklebuster provided.

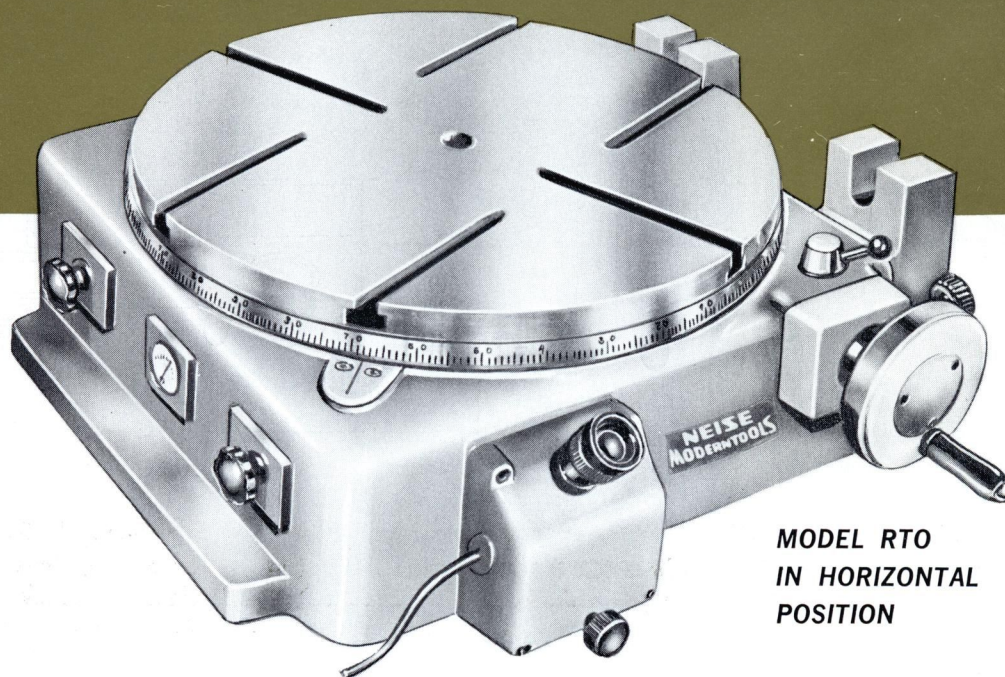
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**NEISE
MODERNTOOLS**

PRECISION ROTARY TABLES

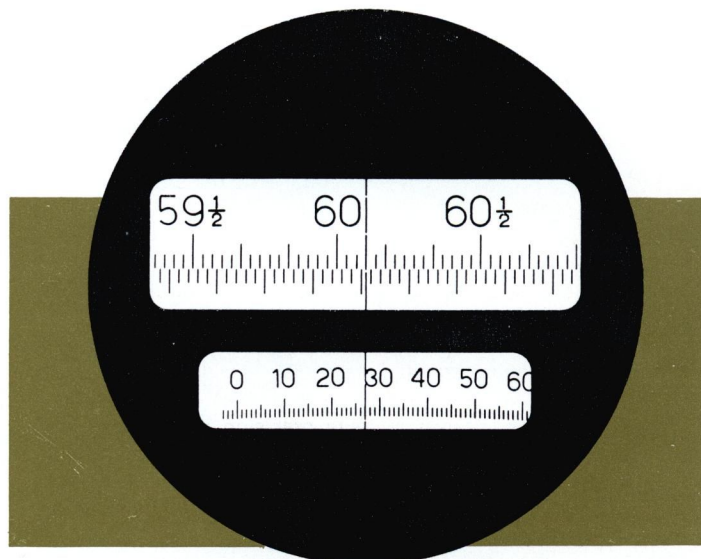
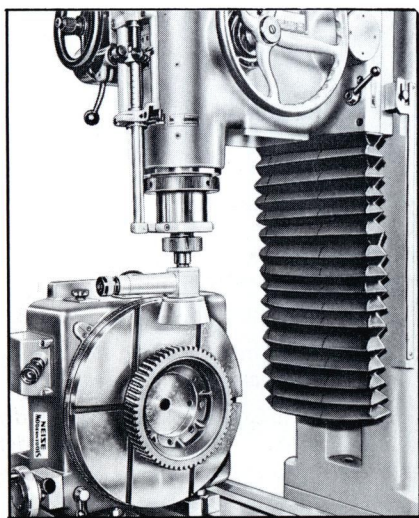
Vertical/Horizontal Optical Rotary Table Model RTO



**MODEL RTO
IN HORIZONTAL
POSITION**

- ANGULAR READINGS TO ONE SECOND OF ARC.
- MAXIMUM SPACING ERROR OVER 360° IS $\pm 1\frac{1}{2}$ SECONDS.
- TABLE IN 90° POSITION IS SQUARE WITHIN .0002".

**MODEL RTO
IN VERTICAL
POSITION**



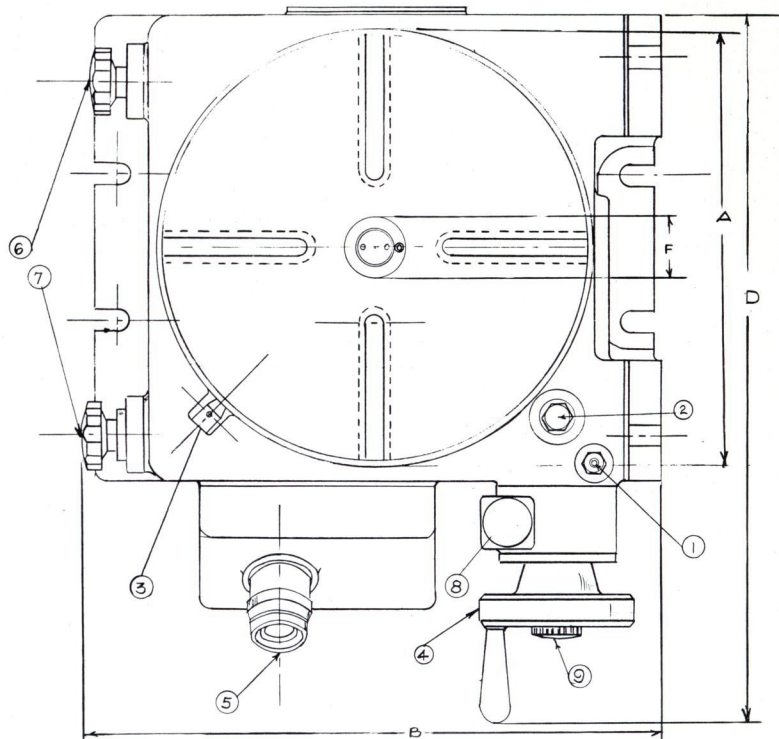
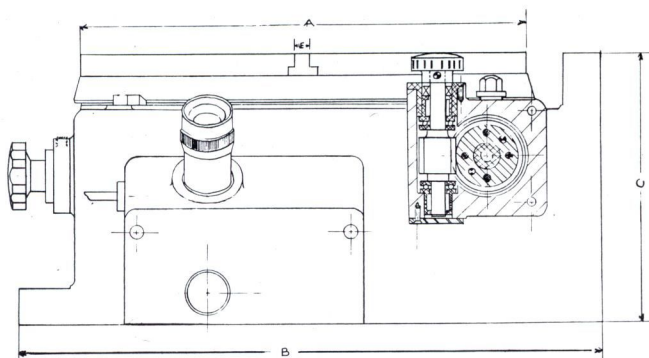
OPTICAL DIVIDING TABLE Reading example: 60° 6' 27"

SEE REVERSE SIDE FOR COMPLETE SPECIFICATIONS

OPTICAL VERTICAL/HORIZONTAL ROTARY TABLE RTO

DESIGNATION OF INDIVIDUAL PARTS

1. Worm Shaft Eccentric Stop Screw
2. Worm Shaft Clamp Screw
3. Zero Index
4. Hand Wheel
5. Optic
6. Knob for Table Clamp
7. Knob for Hydraulic Lift
8. Vernier Adjusting Knob
9. Vernier Locking Knob



DIMENSIONS (Inches)

MODEL	A	B	C	D	E	F	Gear Ratio	Micro-Vernier Gear Ratio	WEIGHT (LBS.)
RTO	12"	15 $\frac{3}{4}$ "	7 $\frac{3}{32}$ "	19"	$\frac{3}{8}$ "	MT-2	84 : 1	30 : 1	242
RTO	16"	20 $\frac{1}{16}$ "	7 $\frac{1}{16}$ "	22 $\frac{3}{4}$ "	$\frac{1}{16}$ "	MT-2	108 : 1	30 : 1	352

The outstandingly fine optical unit reads **directly to minutes**. The optical micro-adjustment further refines the reading to individual seconds of arc.

This optical system is unique with its error reducing split image.

The new type of master scale used in this optical system wherein the glass scale is graduated directly in minutes eliminates optical refraction and mechanical errors from influencing the accuracy of positioning and reading.

This table, despite its high precision is ruggedly built to carry and position a heavy workpiece. It has a built-in hydraulic compensating and friction removal device. A gage is provided as a means to weigh and balance the

weight of the workpiece and thereby remove all internal table distorting friction while turning the table.

The table clamping device prevents over-clamping, table distortion and shifting of position while clamping and unclamping.

A low horizontal table height assures rigidity and allows additional working room under the spindle.

Two methods of positioning are provided:

1. With handwheel, with worm engaged.
2. With knob in center of handwheel, for precise microadjustment.

The worm drive can be easily and rapidly disengaged for free-wheeling using the Neise Moderntools Anti-Knucklebuster provided.

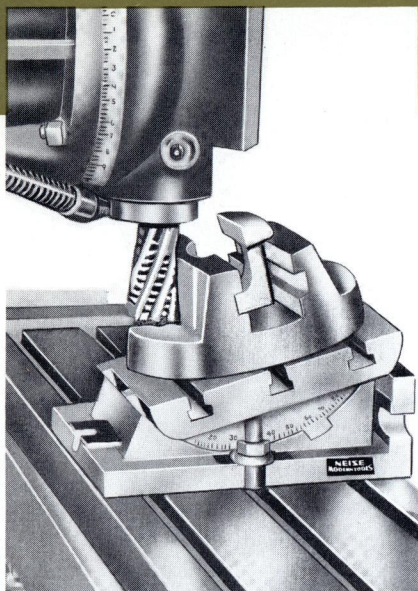
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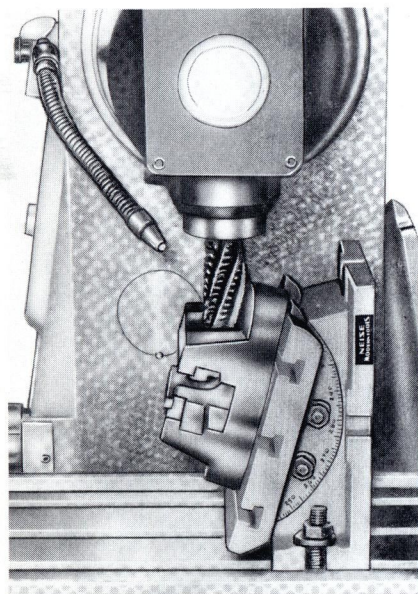
**NEISE
MODERNTOLS**

PRECISION ANGLE TABLES

Vertical/Horizontal Swivel Angle Table Model WT



Illustrates milling an inclined hole on model WT 20 table with suitable holding fixture.



Shows milling the oblique face of the base portion of a 2-jaw swivelling chuck using WT 20.



NEISE MODERNTOLS Precision Machine Tool Tables are heavy-duty and precisely machined. All working surfaces are guaranteed accurate to .0008" or better. Vee guides are scraped and table surfaces and clamping surfaces are accurately ground.

An angular scale is provided for tilt adjustment. Three bolts quickly and positively clamp the table in any position desired. Angular adjustability of all models is 90 degrees except for the smallest WT model which is adjustable to 60 degrees.

The WT and WTR models can be used in the horizontal and vertical planes which further extends their machine tool, layout and inspection applications.

Model WT can be teamed with Model RTH, Horizontal Rotary Table (see page 7) to make an inexpensive precision Rotary Tilt Table. We recommend the 10" diameter RTH model with the 16" WT, the 14" diameter RTH with the 20", etc.

COMPLETE SPECIFICATIONS MODEL WT

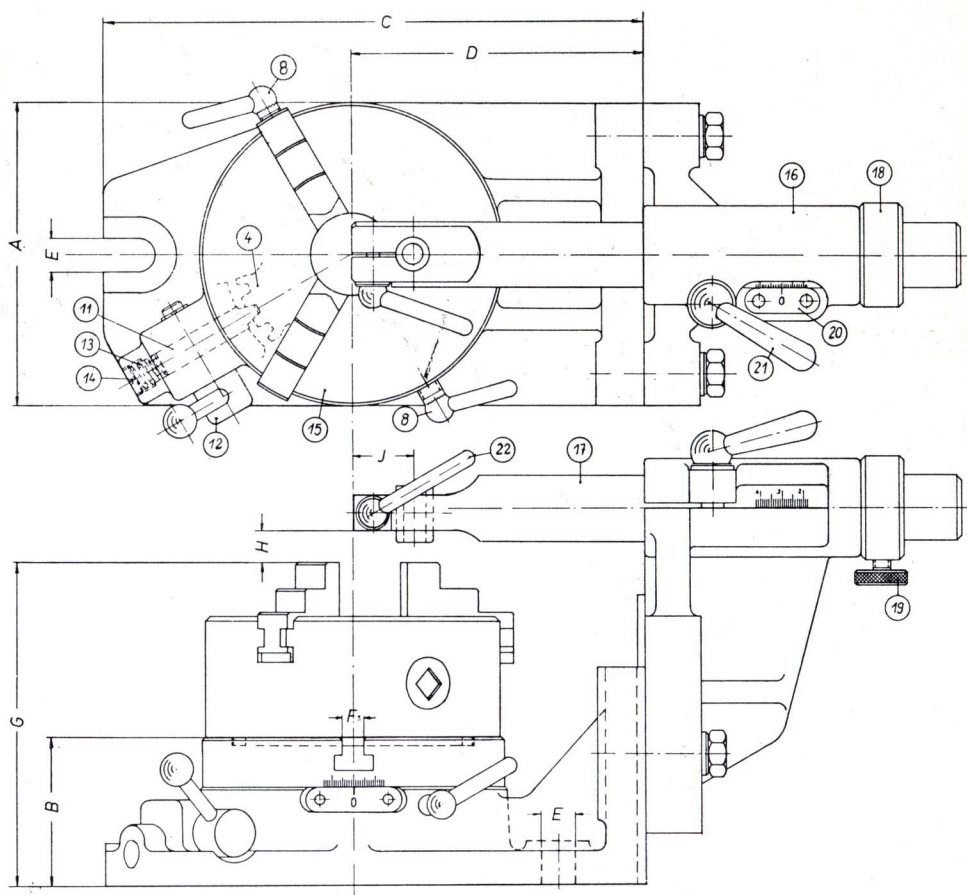
MODEL	SIZE	TABLE AREA	TOTAL HEIGHT	T-SLOTS & WIDTH	BASE AREA		WEIGHT (LBS.)
					HORIZ.	VERT.	
WT	8"	8"x8"	3.5"	3 .472"	9"x8"	3"x8"	32
WT	10"	10"x10"	6"	3 .472"	10"x9"	5"x9"	52
WT	12"	12"x12"	7"	3 .551"	12"x11"	6"x11"	87
WT	16"	16"x16"	9"	4 .551"	15"x12"	9"x12"	156
WT	20"	20"x20"	11"	4 .629"	18"x15"	9"x15"	249
WT	24"	24"x24"	10"	5 .629"	21"x18"	10"x18"	374

SEE REVERSE SIDE FOR MODEL WTR

HORIZONTAL/VERTICAL INDEXING and DIVIDING HEADS MODEL VTA

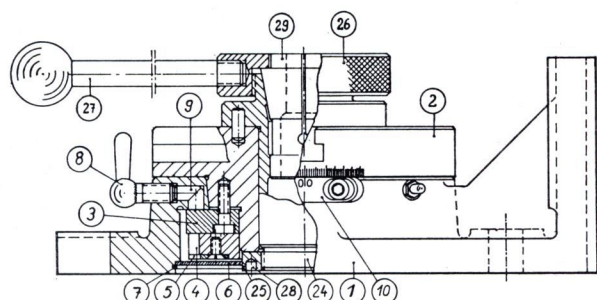
DESIGNATION OF INDIVIDUAL PARTS

1. Base Plate
2. Turn Table
3. Thrust Plate
4. Index Plate
5. Extra Index Plate
6. Cover Plate
7. Retaining Ring
8. Clamping Lever
9. Pressure Pin
10. Adjustable Zero Index
11. Index Pin
12. Index Lever
13. Pressure Spring
14. Setting Screw
15. 3 - or 4 Jaw Chuck
16. Drill Jig Guide
17. Drill Bushing Spindle
18. Adjustable Stop for Spindle
19. Locking Screw
20. Depth Vernier
21. Clamping Lever for Drill Spindle
22. Drill Bushing Clamp
24. Collet Holder
25. Collet Holder Lock Nut
26. Collet Clamping Nut
27. Collet Locking Lever
28. Lock Washer
29. Collets
30. #3 Morse Taper Collets



DIMENSIONS (Inches)

Type	A	B	C	D	E	F	G	H	J	WEIGHT (LBS.)
VTA 1	5.51	2.67	9.84	5.31	.66	.39	5.90	1.18	4.72	23
VTA 2	7.87	3.15	12.99	7.08	.66	.39	7.08	1.38	6.30	55

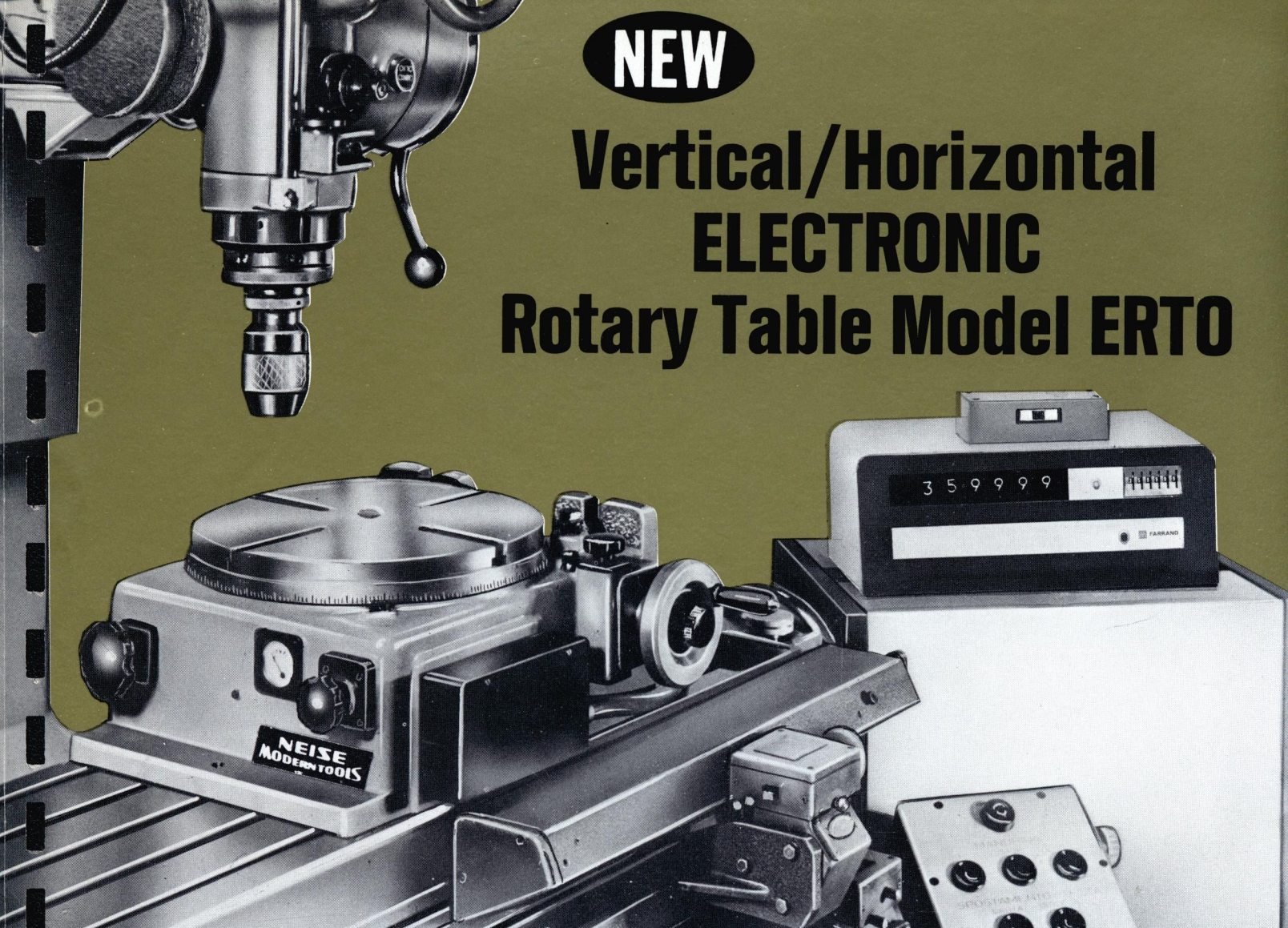


ACCESSORIES AVAILABLE

- 3 JAW CHUCK
capacity 5.118" and 7.480"
- DRILLING FIXTURE
- #3 MORSE TAPER COLLET
- COLLET CHUCK
- COVER PLATE
- SPECIAL DIVIDING PLATE

KARL A. NEISE, INC.

56-02 ROOSEVELT AVENUE • WOODSIDE, NEW YORK 11377



NEW

Vertical/Horizontal ELECTRONIC Rotary Table Model EROTO

Electronic Vertical-Horizontal Rotary Table with digital readout. Mechanical accuracy of rotary table 1 sec. of arc. Electronic read out discrimination is .0001° or .360 seconds.

- The zero position can be shifted and oriented to any datum point of the 360° table movement without loss of accuracy.
- The decimal system of electronic division is registered progressively on the projected visual readout and finalized on a differential center null meter to .0001 degree or .360 seconds of arc.
- To avoid error in reading, a visual indicator shows absolute electrical zero each two degrees.
- Provisions are incorporated for the connection of graphic recording equipment which will record each position.
- A new digital presetting counter is also included on the panel.

- Similar to the RTO model in mechanical construction, the table can be positioned in 3 ways.

1. Free wheeling with worm disengaged, using Karl A. Neise Anti-Knucklebuster as a lever.
2. Normal positioning with hand wheel.
3. Fine positioning with the Micro drive engaged.

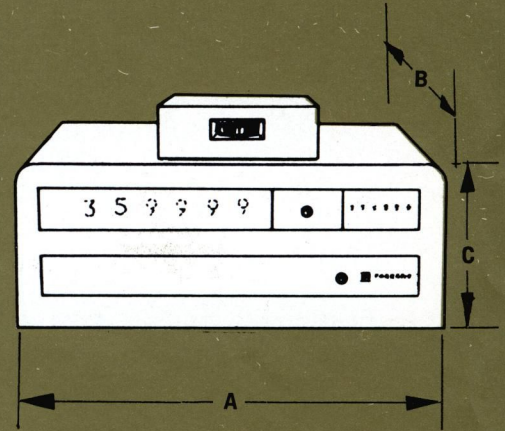
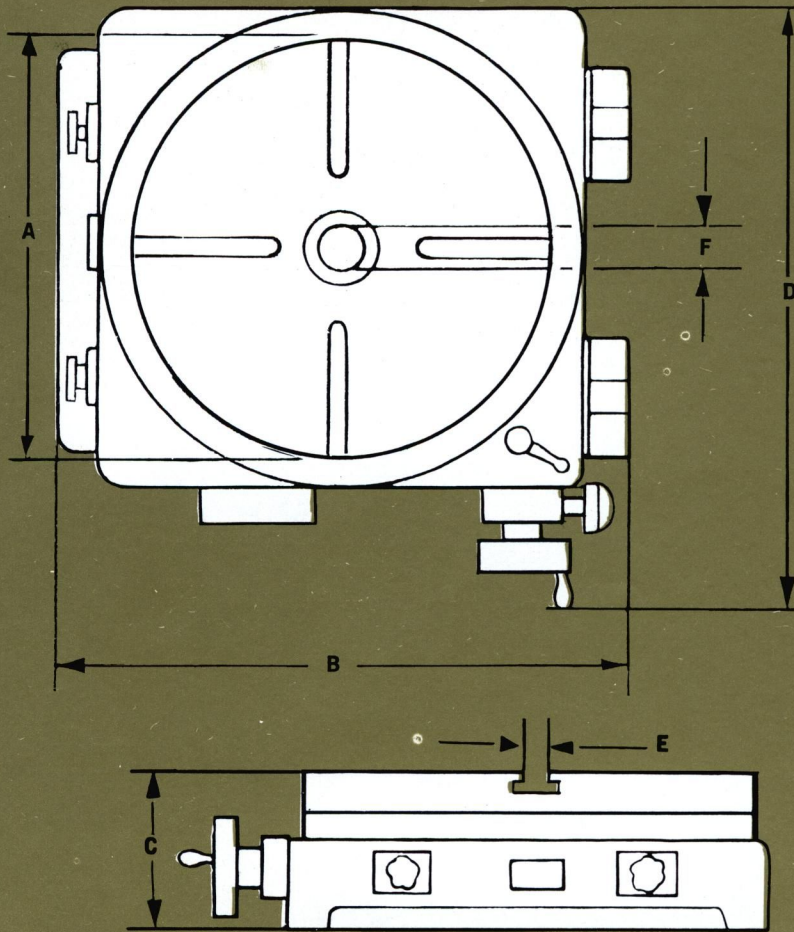
- The added feature of a hydraulic friction and table counter balancing device allows free movement even with heavy and unbalanced loads. A gauge indicates weight compensation.
- The brake for distortion free clamping is of the wrap around type and does not cause a shift of position when being applied or released.

SEE REVERSE SIDE FOR COMPLETE SPECIFICATIONS

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All prices and designs subject to change without notice. Prices F.O.B. Woodside, New York.

HORIZONTAL/VERTICAL ELECTRONIC ROTARY TABLE MODEL ERTO



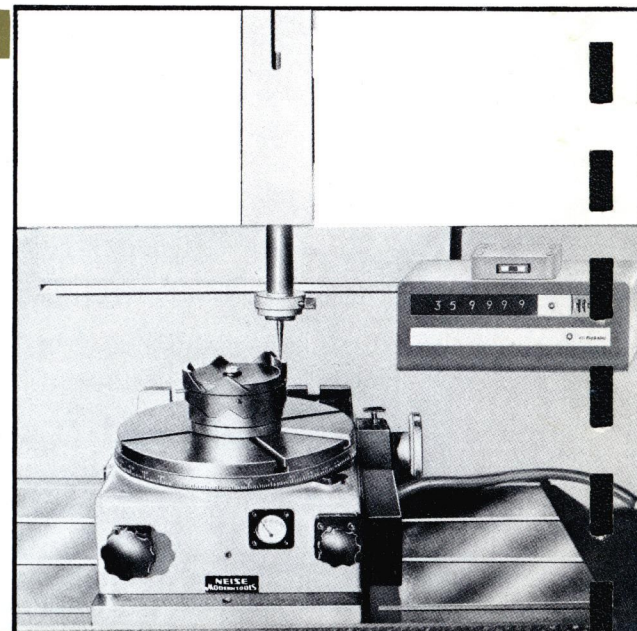
New Farrand I.C. read-out panel with new digital presetting counter.

DIMENSIONS (Inches)

MODEL	A	B	C	D	E	F	GEAR RATIO	MICRO-VERNIER GEAR RATIO	WEIGHT (LBS.)
ERTO	12"	16"	7 $\frac{1}{4}$ "	19"	$\frac{3}{8}$ "	MT2.	84:1	30:1	232
ERTO	16"	20 $\frac{1}{8}$ "	7 $\frac{3}{4}$ "	23"	$\frac{7}{16}$ "	MT2	108:1	30:1	352

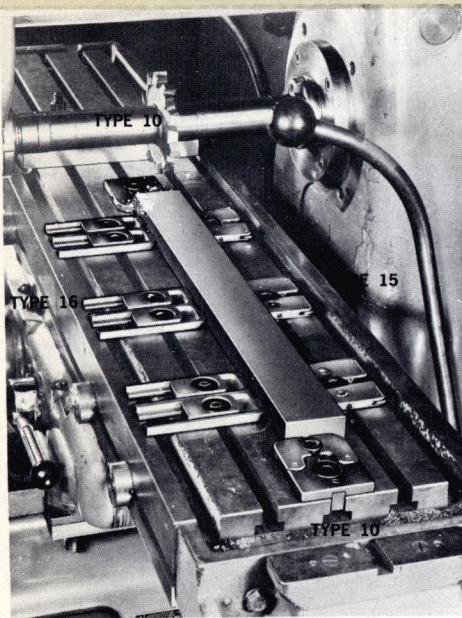
ELECTRONIC EQUIPMENT	A	B	C
	16"	11"	6"

Illustration of a Textile Cam with very accurate angular and dwell requirements precisely measured on a coordinate measuring machine.

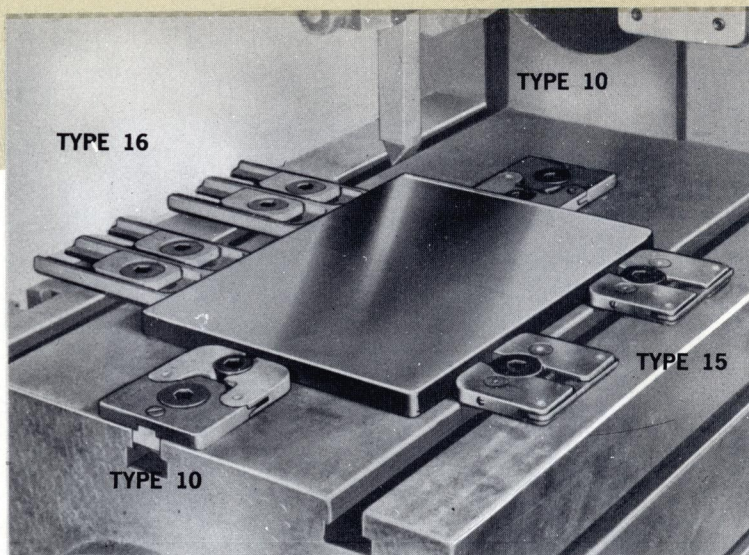


SLIMLINE

Gripping Jaw



SET A, 6 PIECES



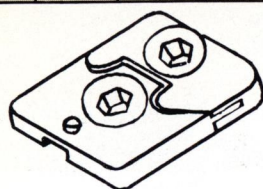
Here's how you can take full advantage of your extra spindle clearance and added table working space when you're operating with low workpieces: Just grip the workpiece with Slimline Gripping Jaws. "Slims" have unusually low clamping silhouette and a powerful grip that holds the piece way down. Converts a lathe faceplate to a chuck.

SET B, 8 PIECES

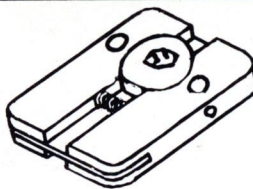
SPECIFICATIONS

Types	10	15	16	30	35	36	60	65	66
Length	3 $\frac{3}{8}$ "	2 $\frac{3}{8}$ "	4 $\frac{3}{4}$ "	5 $\frac{5}{16}$ "	2 $\frac{3}{8}$ "	4 $\frac{3}{4}$ "	5 $\frac{5}{16}$ "	2 $\frac{3}{8}$ "	4 $\frac{3}{4}$ "
Width	2 $\frac{3}{4}$ "	3"	3 $\frac{1}{4}$ "	3 $\frac{3}{16}$ "	3 $\frac{3}{16}$ "	3 $\frac{3}{16}$ "	3 $\frac{3}{16}$ "	3 $\frac{3}{16}$ "	3 $\frac{3}{16}$ "
Height	$\frac{3}{8}$ "	$\frac{3}{8}$ "	$\frac{3}{8}$ "	1 $\frac{1}{16}$ "	1 $\frac{1}{16}$ "	1 $\frac{1}{16}$ "	2 $\frac{3}{8}$ "	2 $\frac{3}{8}$ "	2 $\frac{3}{8}$ "
Weight	1 $\frac{1}{3}$ lb.	1 lb.	1 $\frac{1}{2}$ lb.	3 $\frac{1}{3}$ lb.	2 $\frac{1}{4}$ lb.	2 $\frac{1}{2}$ lb.	6 $\frac{1}{2}$ lb.	4 $\frac{1}{2}$ lb.	3 $\frac{1}{2}$ lb.

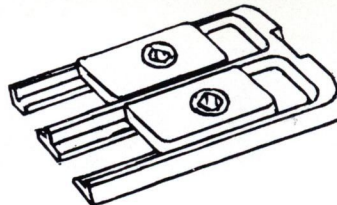
Sets	Total Pieces	SET COMPOSITION
Set A	6	2 pcs. each #10, #15, #16
B	8	2 pcs. #10, 3 pcs. ea. #15, #16
C	6	2 pcs. each #30, #35, #36
D	8	2 pcs. #30, 3 pcs. ea. #35, #36
E	6	2 pcs. each #60, #65, #66
F	8	2 pcs. #60, 3 pcs. ea. #65, #66



Type 10
Type 30
Type 60



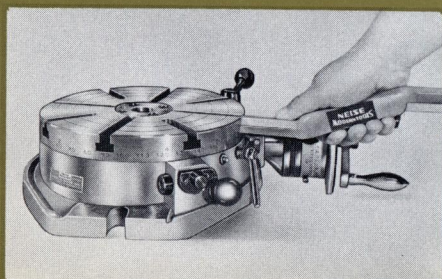
Type 15
Type 35
Type 65



Type 16
Type 36
Type 66

the SAFE ANTI-KNUCKLEBUSTER

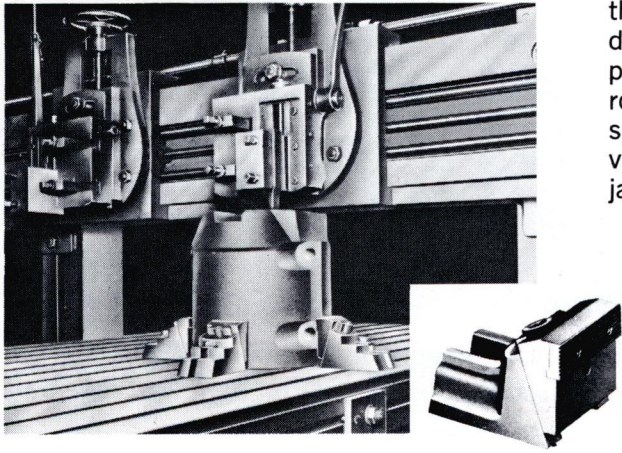
**End One Source
of INJURY
Where Rotary Tables
are used**



Nasty knuckle injuries — occasional lost fingers! — Damage to rotary tables and machine surfaces and lost time. These used to be occupational hazards wherever rotary tables were positioned or moved. Not any more! The new ANTI-KNUCKLEBUSTER has changed all that! Correct use of the ANTI-KNUCKLEBUSTER prevents hand injuries. Lightweight aluminum construction prevents damage, scuffing or marring of slots. T-tangs on either end fit virtually every inch or metric rotary table and dividing head.

THEY'RE UNIVERSAL! THEY'RE VERSATILE!

"UNIVERSATILE" GRIPPING CLAWS



Some of the usual—and unusual—workpieces held securely by Gripping Claws

One set of powerful Gripping Claws will hold down shapes that formerly required several — without hammering down. Angular approach applies tremendous "hold-down" pressure — takes odd shapes, too; extra-large, extra-small, rounds, rectangulars. Compact in size to provide extra spindle space and work surface. Operate horizontally or vertically. Quickly converts a lathe face plate to a 3 or 4 jaw chuck.



SPECIFICATIONS

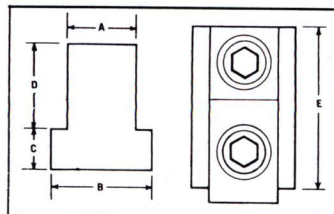
SIZE	JAW WIDTH	DEPTH DIMENSIONS	BASE LENGTH	APPROX. WEIGHT
1	2.559"	2.086"	3.547"	7.75 lb.
2	3.346"	3.149"	5.311"	22 lbs.
3	4.724"	5.315"	9.055"	77 lbs.

MINI-MIGHT-TEE T-SLOT GRIPPING JAWS

Tiny but tough—that's what you'll say about Mini-Might-Tee Gripping Jaws. They fit into the T-slot and just barely appear above the surface. Yet they grip like a Hercules to hold down a workpiece as thin as a dime. Perfect for jobs where you need extra clearance under the spindle and for your entire table working space.

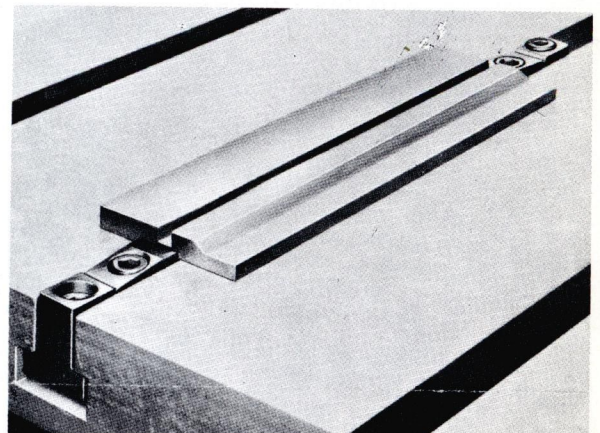
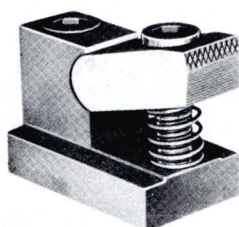
On Rotary Tables and face plates, they easily replace an expensive 3 or 4 jaw chuck. Work is always pulled down on the table.

Little, but Might-Tee Powerful!



SIX SIZES
AVAILABLE IN PAIRS

Size M.M.	A Inch	B	C	D	E
10	3/8"	23/32	5/16	3/8	1 1/2
12	1/2"	25/32	5/16	5/8	1 1/2
14	5/8"	27/32	11/32	23/32	1 1/2
16	1 1/16"	1 1/16	13/32	13/16	1 3/4
18	3/4"	1 1/8	7/16	13/16	1 3/4
20	7/8"	1 1/4	1/2	1 1/2	1 3/4



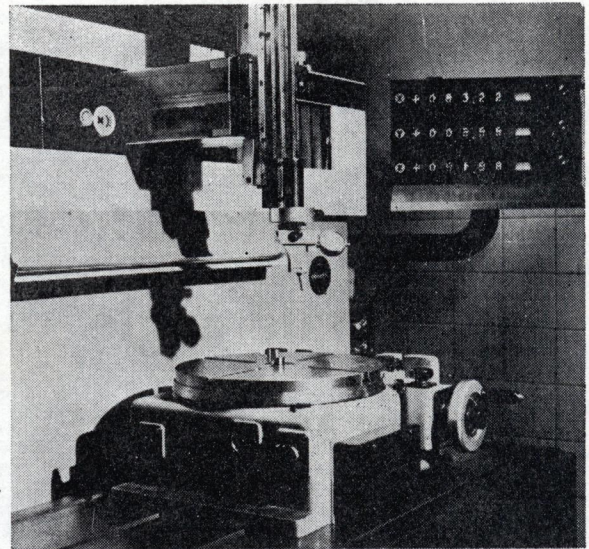
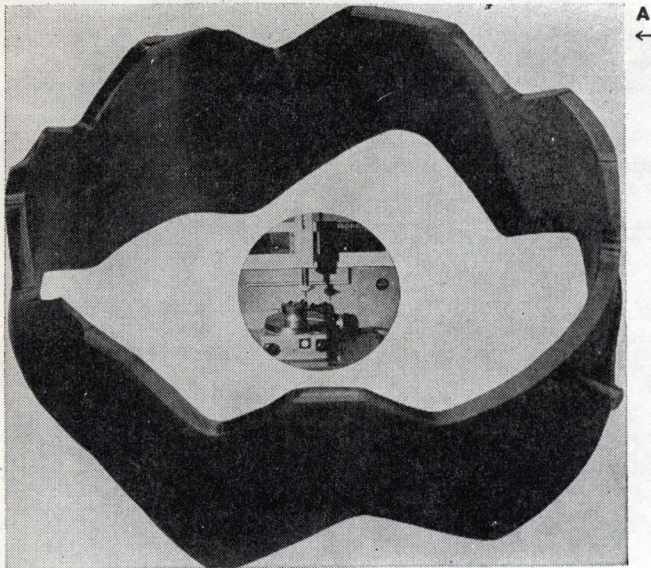
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PRODUCTION EQUIP.
NOV. '69



Good Management in MEASURING

Teaming Rotary Tables with Coordinate Measuring Machine Frees Cost-Burdened Equipment, Speeds Work . . .

The affinity between rotary tables and measuring machines is such that tables are teamed with two or three axis coordinate measuring machines of some manufacturers most profitably.

Julie A. Scholl cites some case histories of the effective and profitable use of Neise electronic or optical rotary tables in new fields of inspection for coordinate measuring machine functions, formerly employing single-purpose inspection devices, in X, Y and Z planes. One, is the time consuming, and source of error practice of calculating coordinates of a bolt circle. This is now simplified by placing the part to be measured on a Neise precision electronic optical or mechanical table. By rotating the table angularly under the test probe—angle, diameter, concentricity and true center are checked simultaneously on the workpiece with a marked saving of time.

In another application, which is pictured here, the workpiece was a complicated crown cam (textile) where the rate of climb and dwell points are measured accurately by teaming up of an electronic rotary table (either

a Neise ERTO electronic, and/or a RTO optical table) with a 3-axis coordinate measuring machine. (Fig. A)

A considerable saving in time was made for repeatable control of measurement of the crown cam workpiece. Using the electronic read-out and recording output, inspection was completed in 14 minutes, where previous methods of inspection required 144 minutes, a time saving of 130 minutes.

Recounting advantages of combining rotary tables with coordinate measuring machines, it is emphasized that cylindrical, conical and box type workpieces can be inspected on five sides in one set-up by setting the rotary table on its 90° vertical position and rotating the work precisely angularly under the test probe of the measuring machine. In the case of jig borers, they are expensive pieces of equipment which management must keep working to pay off. To tie up a jig borer with complicated part inspection while the coordinate measuring machine stands idle is not good management. And, obviously poor economy. Through the simple expedient of adding a rotary table to the coordinate measuring machine, the \$25.00 per hour jig borer is free of the \$10.00 per hour time-consuming inspection burden. (Fig. B)

It requires very little imagination and little experience to convert to this faster, lower cost method of accurately checking complicated parts with compound angles.

*Mr. Scholle is executive vice-president, Karl Neise, Inc. Woodside, N.Y. See New Literature Dept. for measuring tools and instruments literature available on the company's line.

MASTERTOOLS FOR MODERNIZED MACHINING

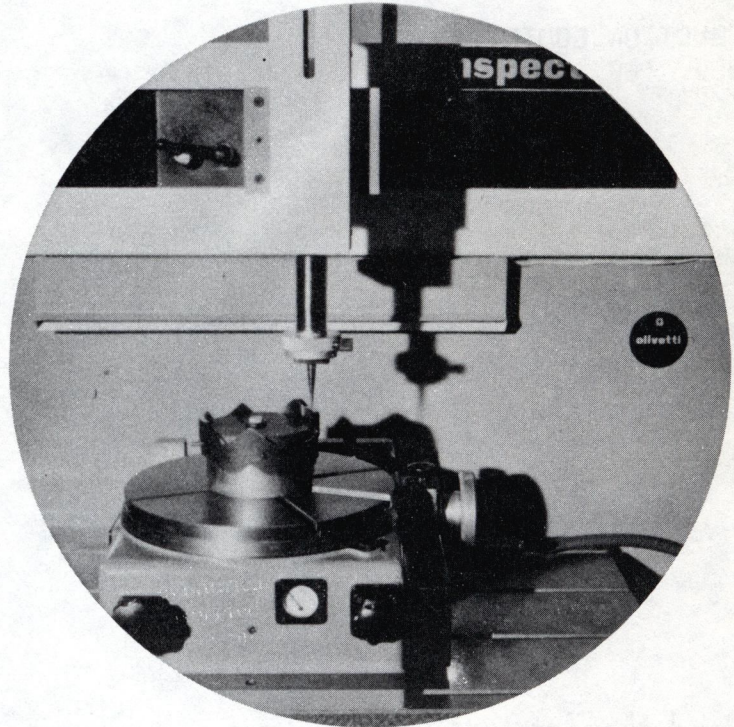
NEISE
MODERNTOOLS

KARL A. NEISE, INC.

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TEST AND MEASUREMENT

Shortcut to accurate angle measurement



At Pirelli S.P.A., Milan, Italy, this measuring combination is used to check crown cams.

Everybody has an angle. Some have lucrative angles. Others, in industry, have angles that have them going in circles trying to measure them. Karl A. Neise, Inc., manufacturer of test and tooling equipment, has teamed its precision rotary table with several brands of two and three axis coordinate measuring machines (CMM) to open up an additional field of inspection for the CMM function.

A simple example

A relatively basic application of this combination involves measuring the coordinates of a bolt circle (a metal ring containing a number of precisely located mounting holes). The time consumed in manually checking hole-to-hole and hole-to-center relationships is reduced by using a precision electronic, optical or mechanical rotary table which is attached to the mounting surface of a CMM.

By rotating the table under the test probe, the measurements necessary to check hole location angles, "all-holes"

diameter, concentricity of outer and inner edge to the center line of mounting holes, and true center are obtained simultaneously, cutting labor and calculation costs.

It can help on difficult parts, too

A more complex application is illustrated by a crown cam, where the rate of climb and dwell points are accurately measured by joining a Neise Electronic Rotary table with a 3 - axis coordinate measuring machine.

The operating points of this type of cam, used in textile manufacturing, are usually defined by linear height dimensions, each associated with a certain angle, all points being on a predetermined radius. By using the rotary table on a CMM, the measuring probe can be locked in a stationary position at a distance from center equivalent to the radius, and the exact angular point under consideration presented to the probe by rotary table movement. A single result, height, is recorded.

Without the ability to rotate the

workpiece, the linear coordinates of each check point would have had to be calculated by triangulation, with the possibility of many mathematical and machine adjustment errors.

Substantial time savings resulted from the development of this method of evaluating the crown cam. A rotary table - CMM combination, utilizing electronic readout and recording systems, completed the inspection of 56 critical points in 34 minutes, where the previous methods of inspection required 144 minutes per cam unit.

In another practical mode of operation, cylindrical, conical and box-shaped workpieces can be viewed and measured from five sides in one set-up, by mounting the rotary device on its 90 deg. to vertical position and turning the part in quadrant increments.

With imagination and experience, complicated parts with compound angles might lend themselves to quick and accurate inspection by this method. ■

Safeguards to automation profits

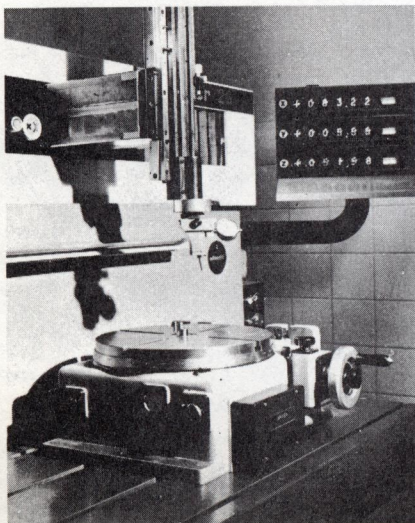
By JULE A. SCHOLL
Executive Vice-president
Karl A. Neise, Inc.

Measuring and dividing accuracies are tossed around by numerous manufacturers and distributors, often with claims that are not supportable in practice. This can work havoc among purchasers who do not have facilities to check out or refute the "borderline" distributors' statements. Obviously, claims of this sort can come only from distributors who have no knowledge of what they sell beyond the consumer cost and their commission on the product. Worse still, a lesser knowledge of the user's requirements. The responsible distributor can back up his claims by giving the customer application assistance or advice.

Hopefully, some good has come out of the current economic situation - the elimination of the irresponsibles who have plagued the metalworking industries for too long. Buyers are more cautious and guard their capital equipment funds more zealously.

Electronics in the last several years, have progressed in giant steps in measuring devices, read-outs, Numerical Controls, and the like. However, in some cases they are incorporated with lower quality equipment which degrades the accuracies to the consumer's detriment, without his knowledge.

One fallacy is the *interpretation of repeatability, measuring and positioning*. These words are bandied about and can befuddle the purchaser. In such cases, when the customer finds out where his machining errors originate, he is too involved with his purchase to back out.



Where readout inaccuracies originate: As one example, a read-out is operated by a pulse or signal very precisely at very high speeds, adding and subtracting *without error*. However, these signals are provided by a piece of equipment usually called an encoder, built mostly in a rotary configuration, which provides X number of counts per revolution. Should the encoder not have enough counts per revolution, it is speeded up with a gear train to give the incremental counts required; but, the manufacturing errors of the gears and angular spacing errors of the encoder cannot produce equally spaced pulse increments from point-to-point within the specified so-called linear accuracy. It is true that it repeats the reading, but the spacing has all the accumulated errors of the irregularly spaced gear teeth, eccentricity of the pitch line, backlash and the spacing error of the encoder.

Another approach is photo electrically counting on an engraved optical scale, or sotted disc, in which case the manufacturing errors of the angular dividing, irregular spacing of graduations, eccentricity of mounting possible gear trains for speed up, all enter into the resulting downgraded accuracy, far below advertised claims. These methods give a read-out, but have no relation to accuracy of measurement, dividing or positioning.

Safe starting point: The most accurate method we have found is to start with an accurate rotary table and directly couple the read-out device directly to the rotating member of the table. This eliminates all gearing errors from the read-out device.

We cite our own Neise ERTO Rotary Table as an illustration. The Inductosyn in either the 360 pole or 720 pole is directly coupled to the table. The rotor turns with the table and the stator is stationary in the base. The only purpose of the worm and gear is to rotate the table.

The sensitivity of this system using our direct coupled approach —with a 7" Inductosyn is .15 sec. of arc with a 12" Inductosyn is .05 sec. of arc.

The repeatability of position — with a 7" Inductosyn is .2 sec. of arc with a 12" Inductosyn is .1 sec. of arc.

Tests made in one of the top, recog-

nized metrology laboratories proved these tables can *repeat positions* to .2 sec. of arc. The linear movement on the rim of a 16" table is in the area of 10 micro inches.

It is a well-known fact that with tables using a drum dial and vernier in order to repeat a position, one must always approach a reading or position in the same direction to minimize backlash of the worm and gear. Again, the actual reading is downgraded by drunkenness of the worm and gear, lubrication, poor mechanical construction, bearings, friction and other error prone features. Occasionally a correction cam is used to overcome poor construction and manufacturing errors, but in most cases this is only window dressing.

In the case of the Rotary Table mentioned, using the electronic integrated circuit read-out and direct coupled Inductosyn, the user is not plagued by all these hazards. A position and reading can be approached from *either direction* with the sensitivity shown above. The read-out can be zeroed out at any point. A pre-setting position or spacing counter is also a feature on the new panel, as well as a provision for a printout which is available.

With the inherent accuracies of angular positioning and dividing with these rotary tables, the instant read-out precisely indicates location when freewheeling the table or moving it with the worm and gear; or when moving very small increments with the built-in vernier fine adjustment knob.

Working with this kind of accuracy at one's finger tips, considerable savings of time are made. In addition, where jig borers and coordinate measuring machines are used, many time-consuming mathematical conversion errors are eliminated in layout or when inspecting circular, angular and conical workpieces. The checking of bolt circles, cams and compound angles is simplified and speeded up without effort. ■

The author, Jule A. Scholl, is Executive Vice President of the Karl A. Neise Co. 56-02V Roosevelt Ave., New York, N.Y. 11377. He is a frequent contributor of measuring and inspection articles to PRODUCTION EQUIPMENT.

REPORT OF THE COMMISSIONER OF THE GENERAL LAND OFFICE

FOR THE YEAR ENDING 31st MARCH 1900

IN ANSWER TO A RESOLUTION OF THE HOUSE OF COMMONS, PASSED 11th JULY 1899

BY THE HON. THE SECRETARY OF STATE FOR THE COLONIES

LONDON: H.M.S.O. 1900

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NEW IMPROVED NEISE-KURODA

UNIVERSAL BORING & FACING MASTERHEADS

THEIR CUTTING & METAL REMOVAL
PERFORMANCE EQUALS OR SURPASSES
ALL OTHER HEADS OF COMPARABLE SIZE



WE CONTINUE TO OFFER YOU

- Our 25 years of experience with boring and facing problems and applications.
- Expert application and operation assistance.
- Expert service and repairs.

EXCLUSIVELY MADE FOR & GUARANTEED BY

KARL A. NEISE, INC.



NEISE-KURODA UNIVERSAL BORING AND FACING MASTERHEADS

Finest Quality Workmanship! Second To None!

BORING • FACING • TURNING • UNDERCUTTING • INSIDE THREAD CUTTING • TAPER CUTTING IN ONE SET-UP . . . ONE MACHINE

For roughing and finishing. • Automatic release accuracy on diameter $\pm .001$ in. • Operating accuracy $\pm .0002$ in.

Fig. 2



UFB 3S WITH TWO FORWARD FEEDS GIVING INCREASED MACHINING CAPABILITIES AND APPLICATION POSSIBILITIES

Ten sizes to fit your machine. You can increase the working capacity of any machine with the boring and facing capabilities of our new Neise-Kuroda Masterhead.

UFB 1, 2 and 3. Figs. 1 & 3 are representative of these models. They feature automatic, continuous crossfeed.

UFB 3S. Fig. 2 shows the newly developed Neise-Kuroda Masterhead with two forward feed rates and one reverse feed rate for self-acting slide:

0.0020 in. for finishing cut
0.0040 in. for roughing cut
0.020 in. for rapid return

UFB 4, 4S, 5, 5S, 6, 6S. Fig. 4 represents these models, which are equipped with 12 automatic feeds activated by pushbuttons. Feed can be increased in increments of .0008 in. up to .0096 in. Automatically disengaged when the preset stop is reached.

Special feed rates available.

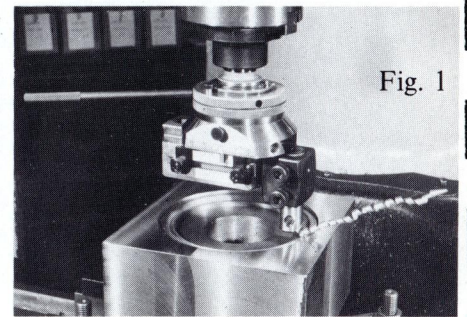
All models have automatic end release, the sensitivity of which can be adjusted for the depth of cut and type of material being worked. This is also a safety feature.

Shanks are integral on all models except UFB 6 and 6S. This insures rigidity and elimination of inaccuracies caused by thread wear or dirt infiltration. Models UFB 6 and 6S are large enough to have interchangeable shanks attached to the head by heavy duty flanges to maintain maximum accuracies.

Neise-Kuroda Masterheads have for years proved highly efficient in thousands of leading industrial enterprises and smaller workshops all over the world. They are used not only for single runs and the manufacture of tools, jigs and fixtures, but also for regular production in mechanical and automotive engineering, etc. No progressive factory can afford to do without them. NEISE-KURODA MASTERHEADS permit large time savings and thus pay for themselves quickly.

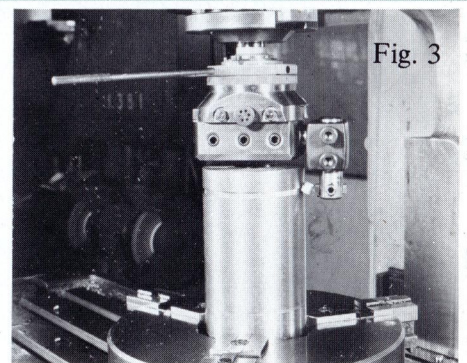
Please note! If you are interested in using the Neise-Kuroda head for N/C, tape controlled or semi-automatic applications, let us know of your requirements so we can send you separate information.

Fig. 1



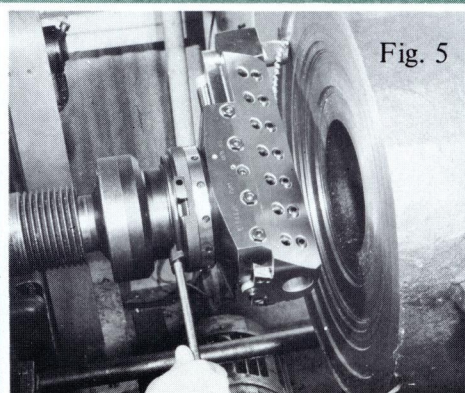
UFB 3 TAKING HEAVY CUT IN TOOL STEEL

Fig. 3



UFB 3 OUTSIDE TURNING OPERATION

Fig. 5



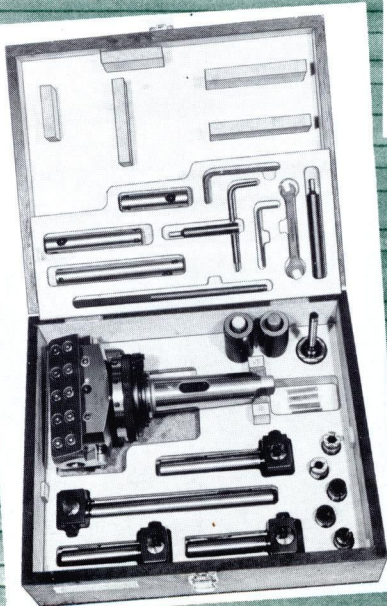
UFB 6S ROUGH MACHINING A LARGE DIAMETER FORGING

Fig. 4



UFB 5S ROUGH MACHINING RECESS

WOODEN CABINET
WCS CONTAINING
HEAD AND EXTRA
EQUIPMENT

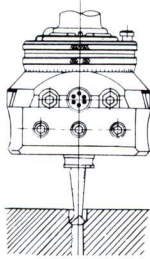




Model		UFB-1	UFB-2	UFB-3	UFB-3S	UFB-4	UFB-4S	UFB-5	UFB-5S	UFB-6	UFB-6S
Standard Taper		MT 1	MT 2	MT 3 Bridgeport R8		MT 4		MT 5		MT 6	
Maximum diameter of boring and reaming operation inch		2 $\frac{1}{8}$	5 $\frac{5}{16}$	10 $\frac{1}{4}$		15 $\frac{3}{4}$		19 $\frac{7}{8}$	24 $\frac{1}{32}$	31 $\frac{7}{8}$	38 $\frac{3}{16}$
Max. adjustability of slide inch		0.79	1.26	1.89	1.87	2.05	3.23	4.41		5.51	9.61
Self-acting slide feed per revolution ...inch		single feed .0022		2-feed .0020	2-feed .0020 .0040	12-feed .0008 .0040 .0072		.0016 .0048 .0080		.0024 .0056 .0088	.0032 .0064 .0096
Graduation of fine adjustment, .inch on dia.		.0005				.0005					
1 revolution of fine adjustment . .inch on dia.		.04				.016				.008	
Quick return per revolution inch on dia.		.04				.24					
Max. dia. of slide inch		1.89	2.28	3.35		4.53	5.59	6.69		8.78	11.77
Height of head without shank inch		2.34	2.5	2.97	3.42	5				7.49	
Dia. of tool post hole inch		$\frac{5}{16}$	$\frac{1}{2}$	$\frac{3}{4}$		$\frac{7}{8}$				1 $\frac{1}{4}$	
Approx. weight lbs.		1.8	2.2	4.9	5.95	15.4	17.0	19.8	20.9	62.0	72.5
FOR OTHER SHANKS SEE OUR PRICE LIST											
Wooden Cabinet for head & extra equipment ins. Weight lbs.		WC 1 6.8x5.9x2.9 1.5	WC 2 8.2x7.0x2.9 1.9	WC 3 11.3x10.8x3.7 4.6	WC 3S	WC 4 15.1x11.6x5.3 7.7	WC 4S	WC 5 16.5x13.5x5.6 9.7	WC 5S	WC 6 27.0x16.0x8.7 33.1	WC 6S
STANDARD EXTRA EQUIPMENT		EE 1	EE 2	EE 3	EE 3S	EE 4	EE 4S	EE 5	EE 5S	EE 6	EE 6S
for models		UFB 1	UFB 2	UFB 3	UFB 3S	UFB 4	UFB 4S	UFB 5	UFB 5S	UFB 6	UFB 6S
BORING REAMERS with square & angular tool holes	for working depth ins.	1.18 U1-62	1.38 U2-62	1.18 U3-62	1.18 U3-62	1.77 U4-64	1.77 U4-64	1.77 U4-64	1.77 U4-64	2.75 U6-66	2.75 U6-66
	for working depth ins.		2.16 U2-63	2.36 U3-63	2.36 U3-63	3.35 U4-65	3.35 U4-65	3.35 U4-65	3.35 U4-65	5.87 U6-67	5.87 U6-67
	for working depth ins.			3.54 U3-64	3.54 U3-64	4.92 U4-66	4.92 U4-66	4.92 U4-66	4.92 U4-66	8.25 U6-68	8.25 U6-68
Boring bar holders	for working range ins.			3 $\frac{3}{8}$ -7 $\frac{1}{2}$ U3-66	3 $\frac{3}{8}$ -7 $\frac{1}{2}$ U3-66	4 $\frac{1}{8}$ -8 $\frac{1}{2}$ U4-68	4 $\frac{1}{8}$ -11 $\frac{1}{32}$ U4-68	4 $\frac{1}{8}$ -11 $\frac{1}{32}$ U5-69	4 $\frac{1}{8}$ -13 $\frac{3}{8}$ U5-69	7 $\frac{1}{8}$ -17 $\frac{3}{4}$ U6-71	7 $\frac{1}{8}$ -24 $\frac{1}{16}$ U6-71
	for working range ins.			6 $\frac{1}{16}$ -10 $\frac{1}{4}$ U3-67	6 $\frac{1}{16}$ -10 $\frac{1}{4}$ U3-67	4 $\frac{1}{8}$ -15 $\frac{3}{4}$ U4-70	4 $\frac{1}{8}$ -15 $\frac{3}{4}$ U4-70	4 $\frac{1}{8}$ -19 $\frac{1}{2}$ U5 71	4 $\frac{1}{8}$ -24 $\frac{1}{32}$ U5 71	7 $\frac{1}{8}$ -31 $\frac{3}{8}$ U6-72	7 $\frac{1}{8}$ -38 $\frac{3}{16}$ U6-72
See figures 8 & 11 on reverse page						2 pieces U4-68	2 pieces U4-68	2 pieces U4-68	2 pieces U4-68	2 pieces U6-70	2 pieces U6-70
Clamping sleeves(ins. on dia.) for accomodation of small boring tool bits in the tool post holes and boring bar holders			$\frac{1}{2}$: $\frac{5}{16}$ $\frac{1}{2}$: $\frac{3}{8}$	$\frac{3}{4}$: $\frac{5}{16}$ $\frac{3}{4}$: $\frac{3}{8}$ $\frac{3}{4}$: $\frac{1}{2}$ $\frac{3}{4}$: $\frac{5}{8}$	$\frac{3}{4}$: $\frac{5}{16}$ $\frac{3}{4}$: $\frac{3}{8}$ $\frac{3}{4}$: $\frac{1}{2}$ $\frac{3}{4}$: $\frac{5}{8}$	$\frac{7}{8}$: $\frac{5}{16}$ $\frac{7}{8}$: $\frac{3}{8}$ $\frac{7}{8}$: $\frac{1}{2}$ $\frac{7}{8}$: $\frac{5}{8}$ $\frac{7}{8}$: $\frac{3}{4}$	$\frac{7}{8}$: $\frac{5}{16}$ $\frac{7}{8}$: $\frac{3}{8}$ $\frac{7}{8}$: $\frac{1}{2}$ $\frac{7}{8}$: $\frac{5}{8}$ $\frac{7}{8}$: $\frac{3}{4}$	$\frac{7}{8}$: $\frac{5}{16}$ $\frac{7}{8}$: $\frac{3}{8}$ $\frac{7}{8}$: $\frac{1}{2}$ $\frac{7}{8}$: $\frac{5}{8}$ $\frac{7}{8}$: $\frac{3}{4}$	$\frac{7}{8}$: $\frac{5}{16}$ $\frac{7}{8}$: $\frac{3}{8}$ $\frac{7}{8}$: $\frac{1}{2}$ $\frac{7}{8}$: $\frac{5}{8}$ $\frac{7}{8}$: $\frac{3}{4}$	$\frac{7}{8}$: $\frac{1}{2}$ $\frac{7}{8}$: $\frac{3}{8}$ $\frac{7}{8}$: $\frac{1}{2}$ $\frac{7}{8}$: $\frac{5}{8}$ $\frac{7}{8}$: $\frac{3}{4}$	$\frac{7}{8}$: $\frac{1}{2}$ $\frac{7}{8}$: $\frac{3}{8}$ $\frac{7}{8}$: $\frac{1}{2}$ $\frac{7}{8}$: $\frac{5}{8}$ $\frac{7}{8}$: $\frac{3}{4}$
set Sizes			CS 2	CS 3	CS 3S	CS 4	CS 4S	CS 5	CS 5S	CS 6	CS 6S
Square Boring Bit ins.		Square $\frac{1}{4}$ x $\frac{1}{4}$ (2 pieces) Boring Bit (2 pieces)	Square $\frac{1}{4}$ x $\frac{1}{4}$ (4 pieces)	Square $\frac{1}{4}$ x $\frac{1}{4}$ (4 pieces)	Square $\frac{1}{4}$ x $\frac{1}{4}$ (4 pieces)	Square $\frac{1}{4}$ x $\frac{1}{4}$ (4 pieces)	Square $\frac{1}{4}$ x $\frac{1}{4}$ (4 pieces)	Square $\frac{1}{4}$ x $\frac{1}{4}$ (4 pieces)	Square $\frac{1}{4}$ x $\frac{1}{4}$ (4 pieces)	Square $\frac{3}{8}$ x $\frac{3}{8}$ (4 pieces)	Square $\frac{3}{8}$ x $\frac{3}{8}$ (4 pieces)
Reinforcing rings ins. See figure 12 on reverse page						U4-78 $\frac{3}{8}$ U4-79 $\frac{3}{4}$ U4-82 2 $\frac{3}{8}$ 3 rings	U4-78 $\frac{3}{8}$ U4-79 $\frac{3}{4}$ U4-80 1 $\frac{1}{16}$ 3 rings	U4-78 $\frac{3}{8}$ U4-79 $\frac{3}{4}$ U4-82 2 $\frac{3}{8}$ 4 rings	U4-78 $\frac{3}{8}$ U4-79 $\frac{3}{4}$ U5-81 1 $\frac{1}{4}$ U4-82 2 $\frac{3}{8}$ 4 rings	U6-80 $\frac{3}{8}$ U6-81 $\frac{3}{4}$ U6-82 2 $\frac{3}{4}$ U6-83 3 $\frac{1}{8}$ 4 rings	U6-80 $\frac{3}{8}$ U6-81 $\frac{3}{4}$ U6-82 2 $\frac{3}{4}$ U6-83 3 $\frac{1}{8}$ 4 rings

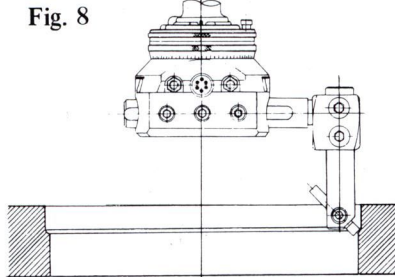
EXAMPLES OF APPLICATION OF ACCESSORIES

Fig. 7



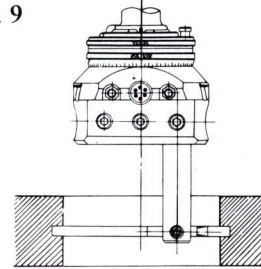
Boring operation, using a clamping sleeve and a bit with shank.

Fig. 8



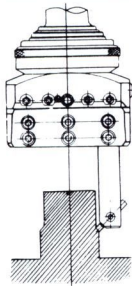
Large dia. boring operation, using a boring bar holder and a boring bar.

Fig. 9



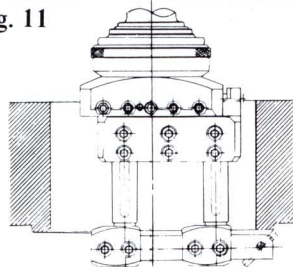
Recessing operation, using a boring bar.

Fig. 10



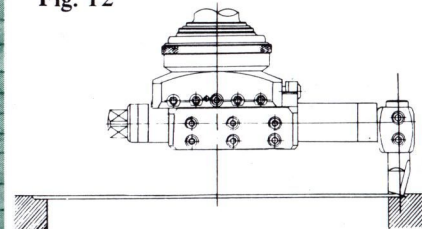
Outside turning operation, using a boring bar.

Fig. 11



Facing rear portion by means of two boring bar holders and one boring bar.

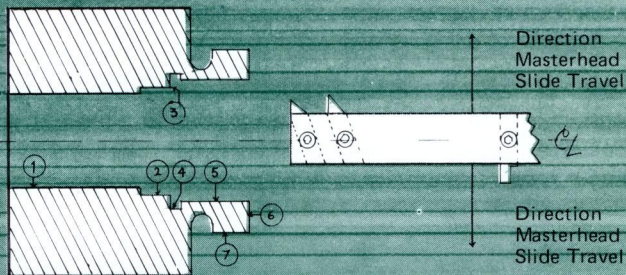
Fig. 12



Large dia. facing operation, by means of a long boring bar holder reinforced through rings and a drawing bolt, and a special bit.

TYPICAL BORING BAR CONSTRUCTION FOR MULTIPLE OPERATIONS WITHOUT TOOL CHANGE USING MASTERHEAD AND KAN STOPS

Our 25 years of introducing, improving, developing and supplying our customers with expert application and operational assistance plus Repair Service continues uninterrupted with our own Universal Boring & Facing Head and patented Turret Stops* made exclusively for us by Kuroda, a Tool & Gage manufacturer known World Wide for precision.



1. Rough & Finish Bore
2. Rough & Finish Bore
3. Face shoulder and undercut
4. For thread Run-out and O-Ring.
5. Rough & Finish Bore.
6. Face Surface
7. Rough & Finish Turn O.D.

Typical Boring Bar construction when using combined technology of Neise Kuroda Masterhead and exclusive turret Kan Stops. This new Neise team reduces error-prone and time consuming tool changes and adjustments. Ideal for semi-Automated and Numerical controlled operations.



NEISE-KURODA
MASTERHEAD
WITH KAN STOPS



KAN STOPS

- Reduce tool changes
- Perform repetitive operations
- Machine multiple bore diameters
- Maintain roughing & finishing cuts
- In one set-up do recessing undercutting and other operations in multiples.

Ideal for Semi-Automatic, Full Automatic, NC and repetitive machining operations on your standard machines.

KARL A. NEISE, INC.

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**NEISE
MODERN TOOLS**

90M-5177

NEW from NEISE KAN STOPS

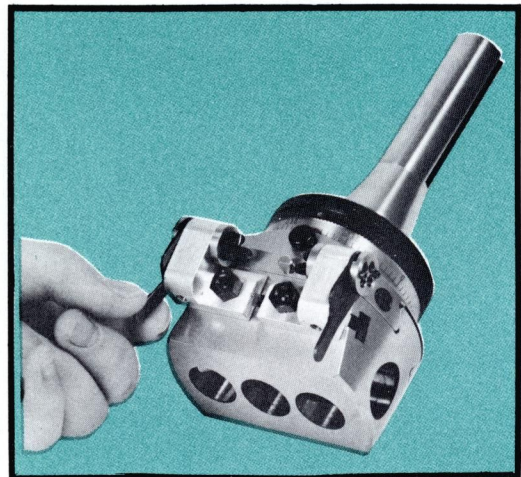
TURRET STOPS FOR UNIVERSAL
FACING & BORING MASTERHEADS



U. S. PATENT NO.
3,800,637

with KAN STOPS

- reduce tool changes
- perform repetitive operations
- machine multiple bore diameters
- maintain roughing & finishing cuts
- in one set-up do recessing undercutting and other operations in multiples



Ideal for Semi-Automatic, repetitive machining operations on your standard machines.

This pair of KAN STOPS incorporated with the NEISE KURODA MASTERHEADS which have been converted for use in N/C and Tape Controlled applications, offer many opportunities for time savings and increased uniformity of production.

Available in pairs-right and left-for Masterhead Sizes #3, 4, 4S, 5, 5S, 6 & 6S.

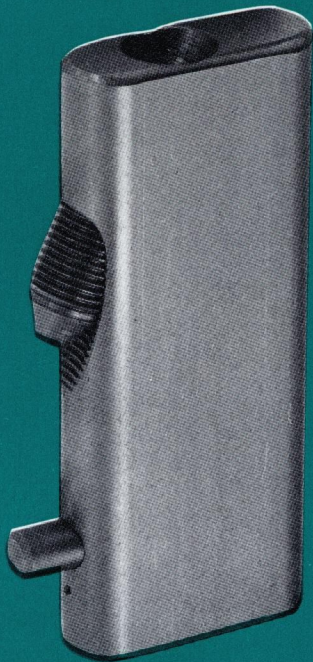
Eight preset positions possible — 4 with each KAN STOP.

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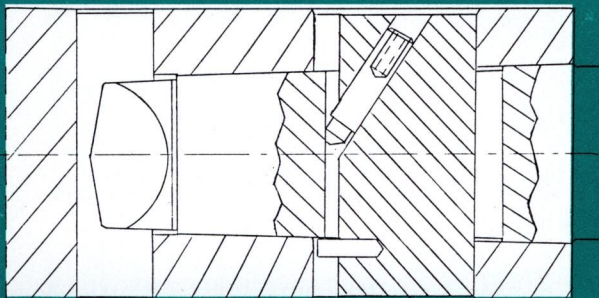
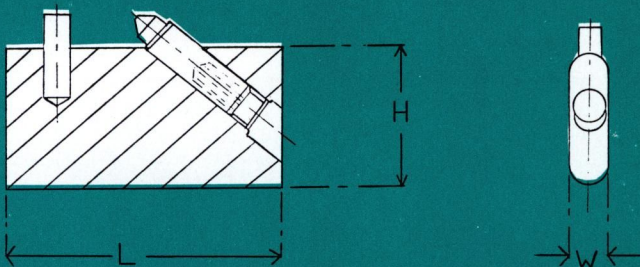
SAFETY WEDGE

THE SPINDLE SAVER

The SAFETY WEDGE is used to hold Morse Taper Shanks securely and safely in the spindle. It eliminates costly damage to machine spindle accuracy resulting from using the conventional wedges—no hammering, simply use allen wrench to adjust SAFETY WEDGE to spindle slot size. Prevents personal injuries and work and tool spoilage due to accidental loosening of shank in spindle.

Provides stability for heavier cuts and finer finish. Eliminates tool chatter.

NEISE helps you to play it safe.



Don't use old fashioned spindle and tool damaging methods. Save spindle accuracy. Avoid accidents. Simply insert the SAFETY WEDGE and adjust screw to secure Morse Taper shank in spindle.

- Is quick and easy to secure and release.
- Results in perfect seating of tool in spindle or sleeve.
- Prevents chatter.
- Eliminates hammering of spindle to secure tool.
- Saves spindle bearing and accuracy.
- Prevents personal injuries and work and tool spoilage due to accidental loosening of shank from spindle.

A Stop Pin centers the SAFETY WEDGE in the middle of the spindle, locating on the side of the Morse Taper shank. It also prevents its being put upside down in the slot.

The Tightening Screw secured with the T-Wrench furnished has a 3° angle at the tip contacting the shank slot. This conforms to the angle in the slot.

The Tightening Screw cannot release by itself due to the combination of the fine thread pitch, the self-locking effect of 3° angle (mentioned above) and the 30° inclination of the screw.

A T-WRENCH IS
SUPPLIED WITH EACH
SAFETY WEDGE



Type No.	For Spindle Dia. up to	Morse Taper	Dimensions Inch		
			W	H	L
MT 3-40	1-1/2"	3	.315	.800	1.500
MT 3-36	1-1/2"	3	.315	.800	1.345
MT 4-48	1-7/8"	4	.315	1.100	1.780
MT 4-63	2-1/2"	4	.315	1.100	2.360
MT 5-63	2-1/2"	5	.472	1.300	2.360
MT 5-75	3"	5	.472	1.300	2.750
MT 5-90	3-1/2"	5	.472	1.300	3.375
MT 6-100	3-7/8"	6	.630	1.000	3.800
MT 6-120A	4-23/32"	6	.630	1.000	4.562
MT 6-120B	4-23/32"	6	.630	1.500	4.562
MT 6-130	5-1/8"	6	.630	1.000	4.718
MT 7-140	5-1/2"	7	.750	1.535	5.275

INCREASED SAFETY WITH MORE POWER

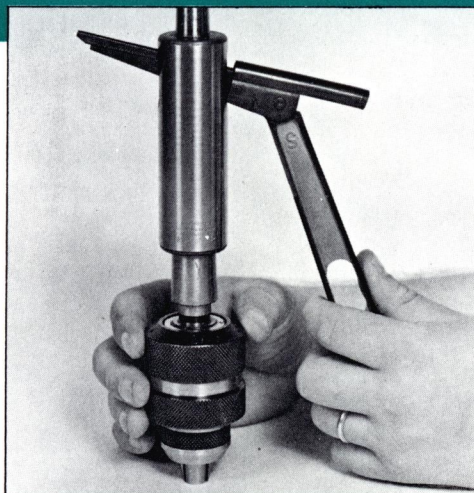


MODERN TECHNOLOGY
IMPROVES THE **TANGMASTER®**
EJECTION POWER INCREASED ALMOST 100%.

ALL TANGMASTERS now have Teflon "S" coated sliding surfaces. This reduces internal friction and increases ejection power of almost 100%.

Use the TANGMASTER and eliminate:

- Damage to precision spindle bearings.
- Accidental dropping of tools on workpiece or table surfaces.
- Safety against hand injuries from hammer or dropped cutting tools.
- Chipped cutting tools.
- Marred tang-ends.
- Ulcers caused by any of the above.



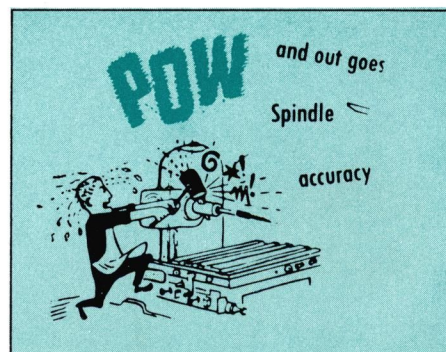
*It's so much Easier
to do it Right!*

Here's all you have to do to operate your tangmaster

1. GRASP TOOL.
2. INSERT TANGMASTER.
3. PULL DOWN HANDLE.

That's all! Tool drops safely into your hand! Nothing damaged! Nobody hurt! Everybody happy!

- # 1 fits Morse taper # 0 - 1
- # 2 fits Morse taper # 1 - 3
- # 3 fits Morse taper # 3 - 6



NEISE helps you to play it safe.
Observe O.S.H.A. recommendations!

KARL A. NEISE, INC.

56-02 ROOSEVELT AVE., WOODSIDE, N.Y. 11377 — Phone: 212 HI 6-7799 © Copyright 1977 by KARL A. NEISE, INC., WOODSIDE, N.Y.

To end one
source of
INJURY
where rotary
tables are used



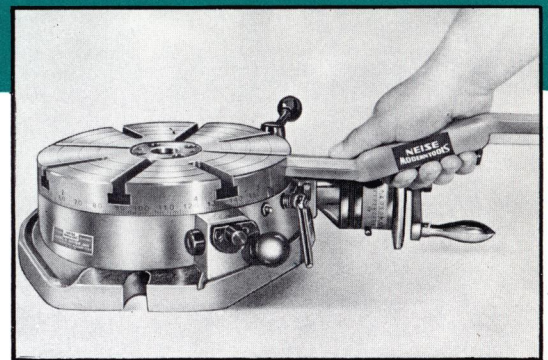
One
FREE with every order
NEISE moderntools rotary table

The **SAFE**

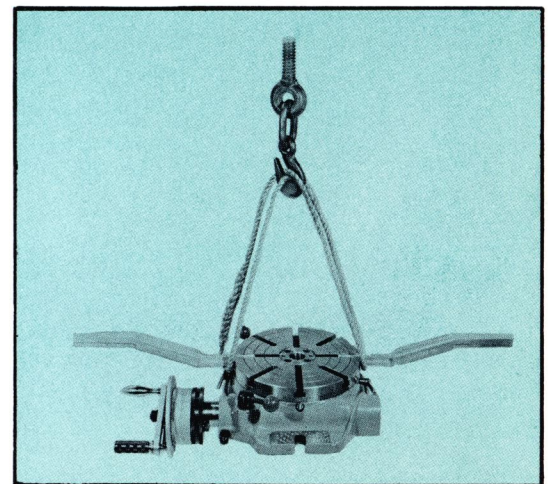
anti-knucklebuster^{*}

Nasty knuckle injuries — even lost fingers!
Damage to rotary tables and machine surfaces! These
used to be occupational hazards wherever rotary tables
were positioned or moved. Not any more! The new
ANTI-KNUCKLEBUSTER has changed all that! Correct
use of the **ANTI-KNUCKLEBUSTER** prevents hand injuries.
Lightweight aluminum construction prevents damage,
scuffing or marring. T-tangs on either end fit virtually every
inch or metric rotary table and dividing head.

NEISE helps you to play it safe.
Observe O.S.H.A. recommendations!



FOR SAFE POSITIONING insert suitable tang-end
into T-slot of table. **ANTI-KNUCKLEBUSTER** pro-
vides sufficient leverage to break oil seal and con-
trol positioning movement with absolute safety.



FOR SAFE LIFTING insert two Anti-Knuckle-
busters in opposite T-slots and rig chain or sling as
shown above. For hand-lifting use two Anti-Knuckle-
busters in opposite T-slots of table.



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* U.S. Patent No. 3,314,315

NEISE

BORING BARS

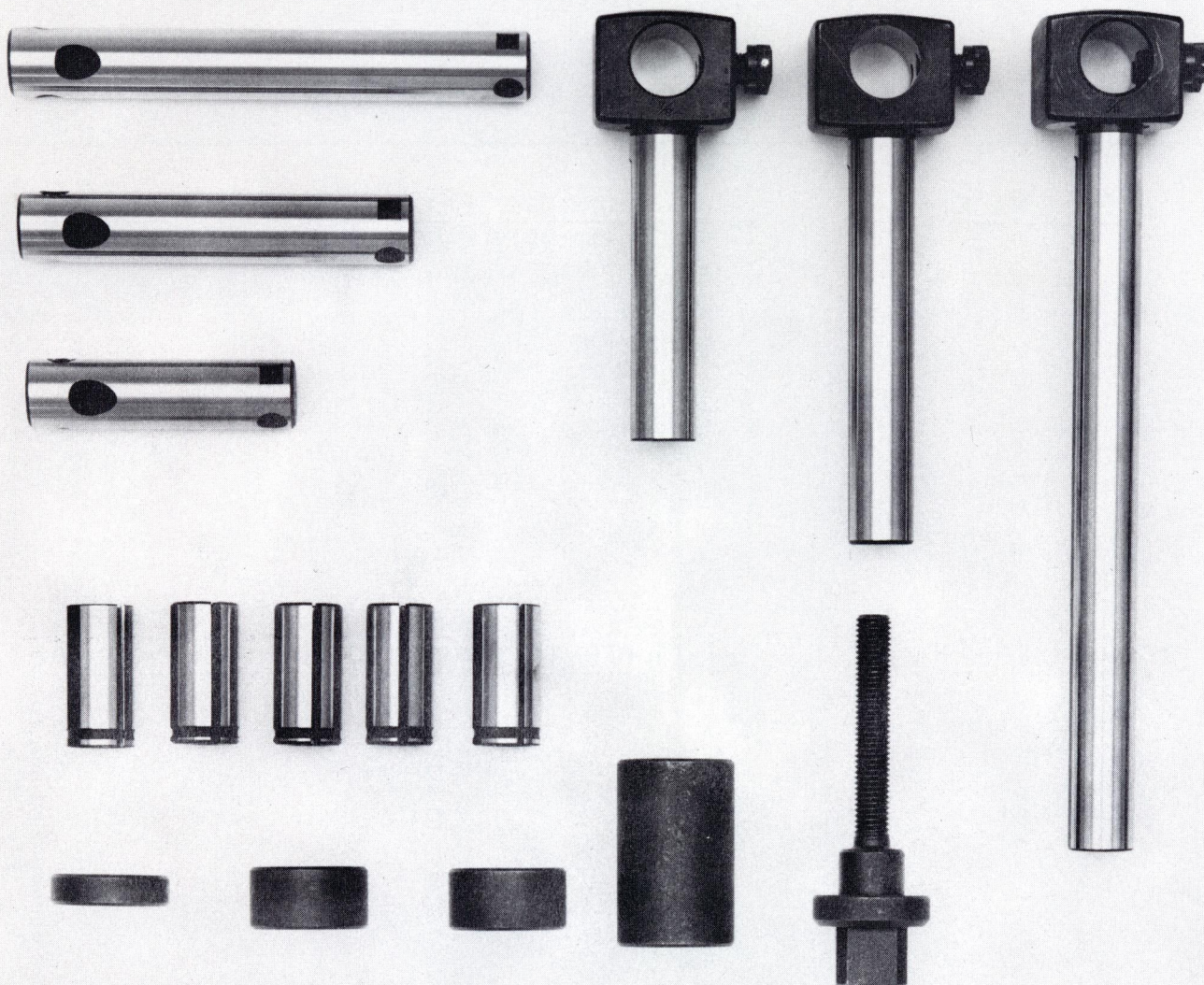
EXTENSION BARS

REINFORCING RINGS

REDUCING SLEEVES

• TOOL STEEL HARDENED & GROUND

• PRECISE



FOR: ALL BORING HEADS USING STANDARD INCH SIZES - **NEISE-KURODA**,
WOHLHAUPTER AND MANY OTHERS.

FOR: LATHES USING MANY OF THE QUICK CHANGE TOOL POST HOLDERS

The **Boring Bars** have a square hole for tool bit in each end--one 45° and the other 90°.

The **Reinforcing Rings** strengthen the **Extension Bars** and are used when extended reaches and heavier cuts are taken to reduce possibility of flexing and chatter.

The **Reducing Sleeves** fit the **Extension Bars**. They accept cylindrically shanked HSS and carbide tool bits with standard inch dimensions.

S P E C I F I C A T I O N S

BORING BARS

<u>PART#</u>	<u>Dia/Inch</u>	<u>Length/Inch</u>
U 359	3/4	2.360
U 362	3/4	3.545
U 365	3/4	4.730
U 4-64	7/8	3.350
U 4-65	7/8	4.930
U 4-66	7/8	6.496
U 6-66	1 1/4	4.730
U 6-67	1 1/4	7.874
U 6-68	1 1/4	10.236

BORING BAR HOLDERS (EXTENSION BARS)

<u>PART#</u>	<u>Dia/Inch</u>	<u>Length/Inch</u>
U 368	3/4	3.145
U 371	3/4	4.730
U 4-68	7/8	3.858
U 5-69	7/8	5.118
U 4-70	7/8	7.086
U 5-71	7/8	9.055
U 6-70	1 1/4	4.730
U 6-71	1 1/4	7.874
U 6-72	1 1/4	14.173

REDUCING SLEEVES

1/2	:	5/16 Inch
1/2	:	3/8
3/4	:	5/16
3/4	:	3/8
3/4	:	1/2
3/4	:	5/8
7/8	:	5/16
7/8	:	3/8
7/8	:	1/2
7/8	:	5/8
7/8	:	3/4
1 1/4	:	7/8

REINFORCING RINGS

<u>PART#</u>	<u>INSIDE Ø Inch</u>	<u>LENGTH/Inch</u>
U 4-78	7/8"	3/8"
U 4-79	7/8	3/4
U 4-80	7/8	1-3/16
U 4-82	7/8	2-3/16
U 6-80	1 1/4	3/8
U 6-81	1 1/4	3/4
U 6-82	1 1/4	2-3/4
U 6-83	1 1/4	3-1/8

TIGHTENING SCREWS FOR REINFORCING RINGS

<u>PART #</u>	<u>LENGTH/Inch</u>	
U 4-83	1.574	For Boring Bar Holder: U 4-70
U 5-83	3.545	For Boring Bar Holders: U 5-71
U 6-84	2.360	For Boring Bar Holders: U 6-72
U 6S-84	5.118	For Boring Bar Holders: U 6-72

KARL A. NEISE, INC.

56-02 ROOSEVELT AVENUE • WOODSIDE, NEW YORK 11377
Tel. (212) 446-7799

NEISE
MODERNTOOLS

MASTER TURBO



- **TIME SAVING**
- **PROFIT MAKING**
- **VIBRATION FREE**
- **VERSATILE**

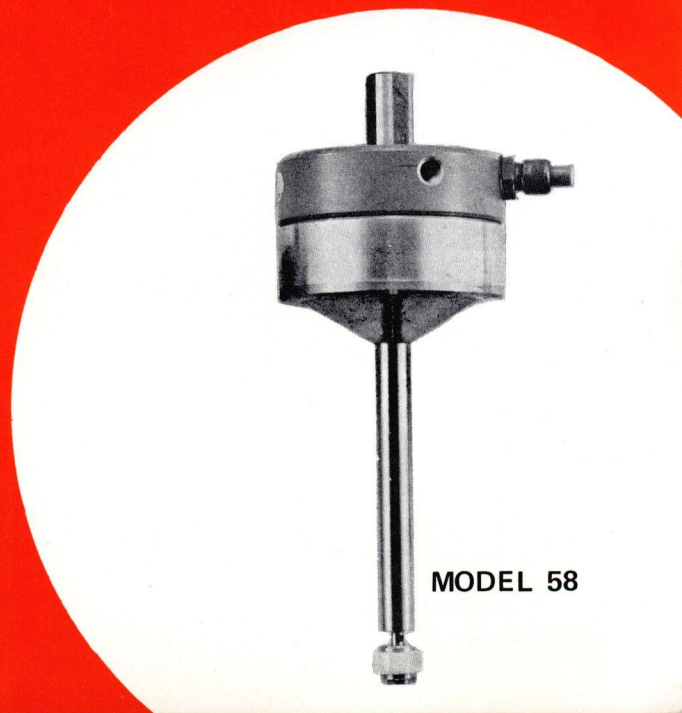
• GRINDERS • AIR SPINDLES

FOR INTERNAL & EXTERNAL

- JIG GRINDING
- PLANETARY GRINDING
- THREAD GRINDING
- HAND GRINDING
- MILLING
- POLISHING
- DEBURRING

USED ON:

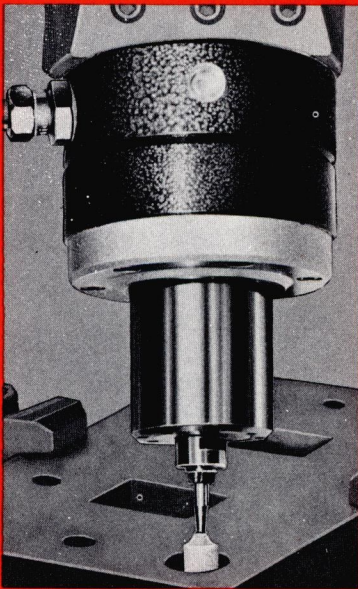
- JIG GRINDERS
- JIG BORERS
- LATHES
- MILLING MACHINES
- PANTOGRAPHS
- ENGRAVERS
- PROFILERS
- SENSITIVE DRILLS



MODEL 58

MASTER TURBO AIR DRIVEN SPINDLES

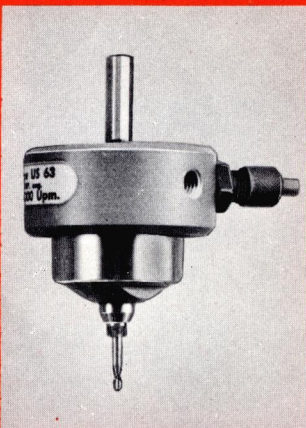
THE UNIVERSAL AIR SPINDLE ACCESSORY EASILY ADAPTED TO YOUR MACHINE. REPLACES OUT-MODED, SLOW, VIBRATION CAUSING SPINDLES WITH BELTS AND MOTORS.



MODEL 70
70,000 RPM



MODEL 58
40,000 RPM



MODEL 100
100,000 RPM

**NOW YOU CAN INCREASE
JIG GRINDERS, JIG BORERS,
PANTOGRAPHS, ENGRAVERS,
DRILLS AND EXTEND THEIR
SPEED RANGES UP**

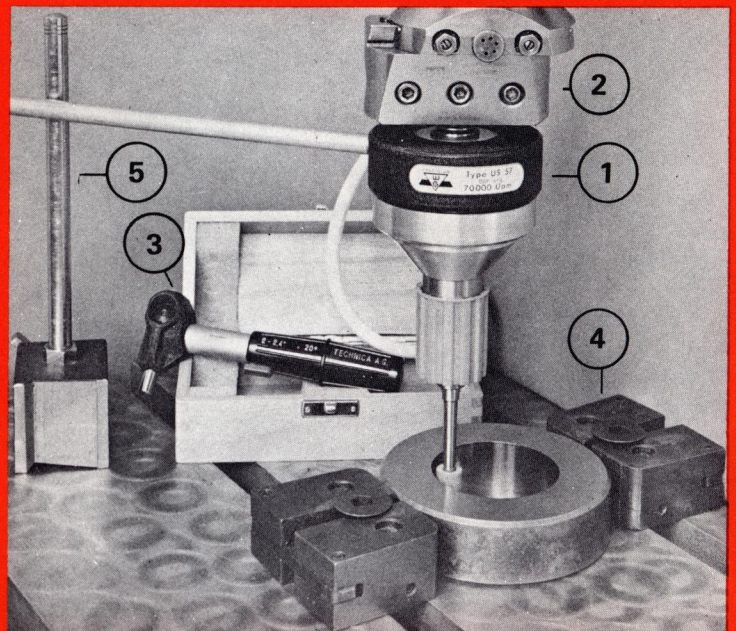
YOU BENEFIT AND PROFIT IN TIME BY:

- (a) Making smoother final cutting finishes, thereby eliminating second and third stage operations.
- (b) Material removal at higher speeds increases production two to three times.
- (c) More production with less operator fatigue.
- (d) Fitting to your present air supply. No separate compressors needed.

TYPICAL JIG GRINDING SET-UP USING NEISE MODERN TOOLS

- 1 TURBOGRINDER
- 2 WOHLHAUPTER BORING & FACING MASTERHEAD
- 3 OPTO-MIKE OPTICAL BORE GAGE
- 4 SLIMLINE GRIPPING JAWS
- 5 MODERNTOLS MAGNETIC BASE
- 6 ELECTR-O-RBIT ELECTRONIC CENTERING INDICATOR & COMPARATOR (not shown)

*Ask for brochures on
above items.*



**PRODUCTION OF YOUR
LATHES, MILLING MACHINES,
PROFILERS, AND SENSITIVE
WORKING RANGE.**

TO 100,000 RPM's

**YOU BENEFIT AND
PROFIT IN SAFETY BY:**

- (a) Eliminating static- producing belts and pulley unbalance.
- (b) Eliminating explosion hazards of electric switches and motor sparks to dust and inflammables.

**YOU BENEFIT AND PROFIT
IN PRODUCTION BY:**

- (a) Working on materials your present equipment could not machine before.
- (b) Flexibility of speed control up to 70,000 to 100,000 RPM.

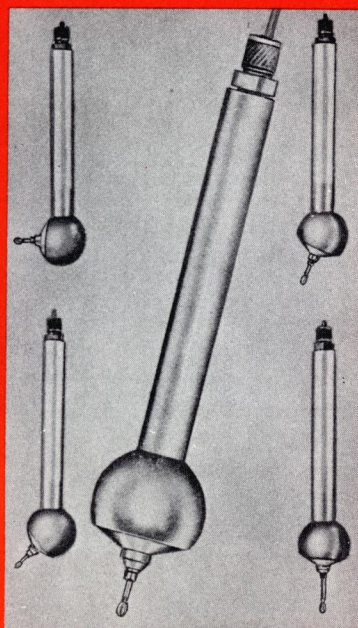
**MODEL
JET**



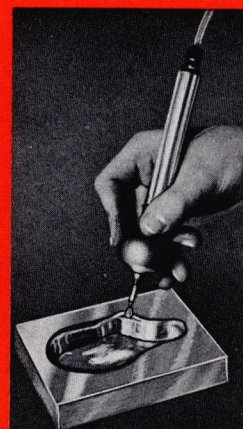
MASTER Jr. TURBO AIR DRIVEN SPINDLES

**CAN ALSO BE USED FOR HAND FINISHING,
POLISHING AND DEBURRING OF THE HARDEST
METALS USING THE NEW CERAMIC, DIAMOND
AND CARBIDE CUTTERS.**

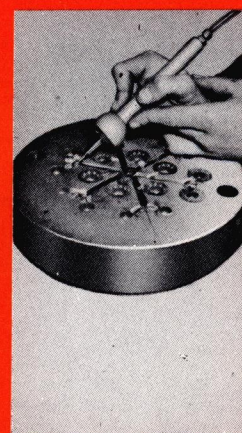
Available in Straight, 45°
and 90° angles.
Specify angle on order.



Illustrations show standard
angles for Master Jr. Turbo
Air Spindles.



Relieving Flash line
of Plastic Mold.

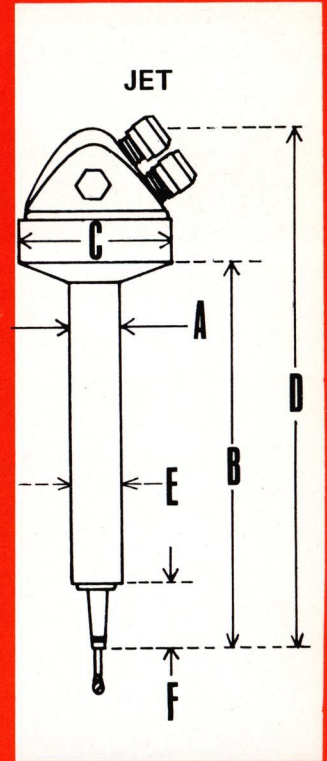
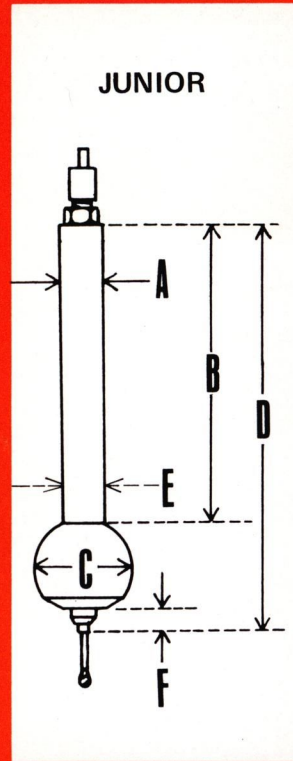
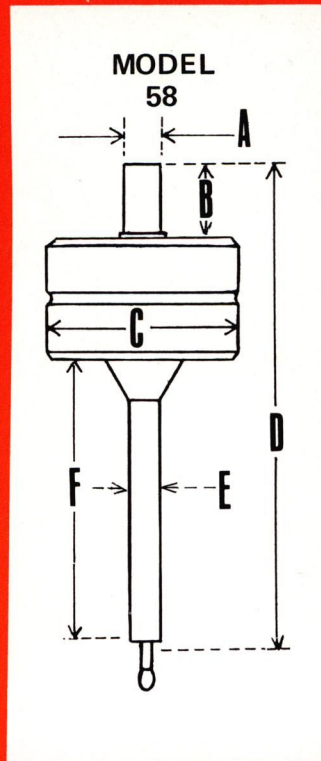
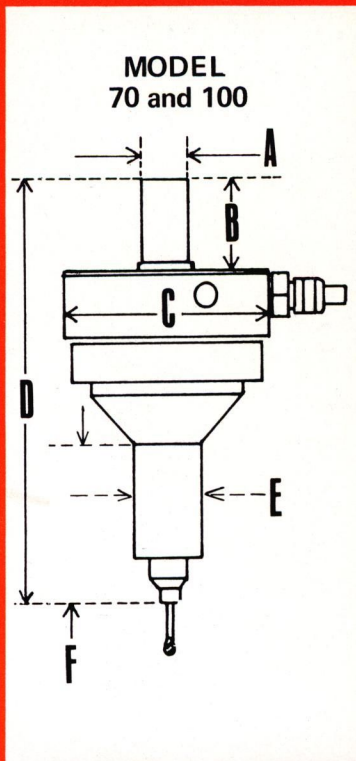


Enlarging Mold Gates

MODEL JET OFFERS A NEW CONCEPT!

WON'T CONTAMINATE WORK! No oil
mist comes near operation. Safe to use on any
material: porous mats, printed circuits, etc.

**WORK AREA HAS UNOBSTRUCTED
VIEW!** Small working diameter allows greater
freedom of movement in cramped areas.



SPECIFICATIONS

Models	R.P.M.	A	B	C	D	E	F	Collets	P.S.I.	Cu. Ft.	Watts
70	70,000	.750"	1.250"	3.075"	5.700"	1.570"	1.640"	1/8"-5/32"	60	5	720
58	40,000	.750"	1.375"	3.625"	9.200"	.600"	5.319"	Flange	60	7.4	720
58	40,000	.750"	1.375"	3.625"	11.700"	.600"	8.075"	Flange	60	7.4	720
100	100,000	.312"	1.044"	2.205"	2.970"	1.496"	.200"	3/32"-1/8"	60	2.5	340
JR.*	100,000	.709"	4.800"	2.550"	6.340"	.715"	.200"	3/32"-1/8"	60	2.5	340
JET**	80,000	.750"	5"	2.125"	6.875"	.750"	.800"	3/32"-1/8"	60	3.50	360

Model 70 Collet to take 5/32" and 1/8" shanked cutting tools.

Models 100 and Jet Collets to take 3/32" and 1/8" shanked cutting tools.

Models 70, 58, 100 come packed in fitted wooden boxes with wrenches and instructions.

*Also available in straight, 90°, and 45° angle heads.

**Air-mist exhausts away from work area and prevents contamination.

Use standard oil air mist lubrication with filter and regulator

**BUY NOW AND SAVE DAILY BY FASTER AND MORE EFFICIENT
PRODUCTION AND SAFER OPERATION. Write for detailed specifications.**

DISTRIBUTED BY:



KARL A. NEISE, INC. 56-02 Roosevelt Avenue, Woodside, N.Y. 11377

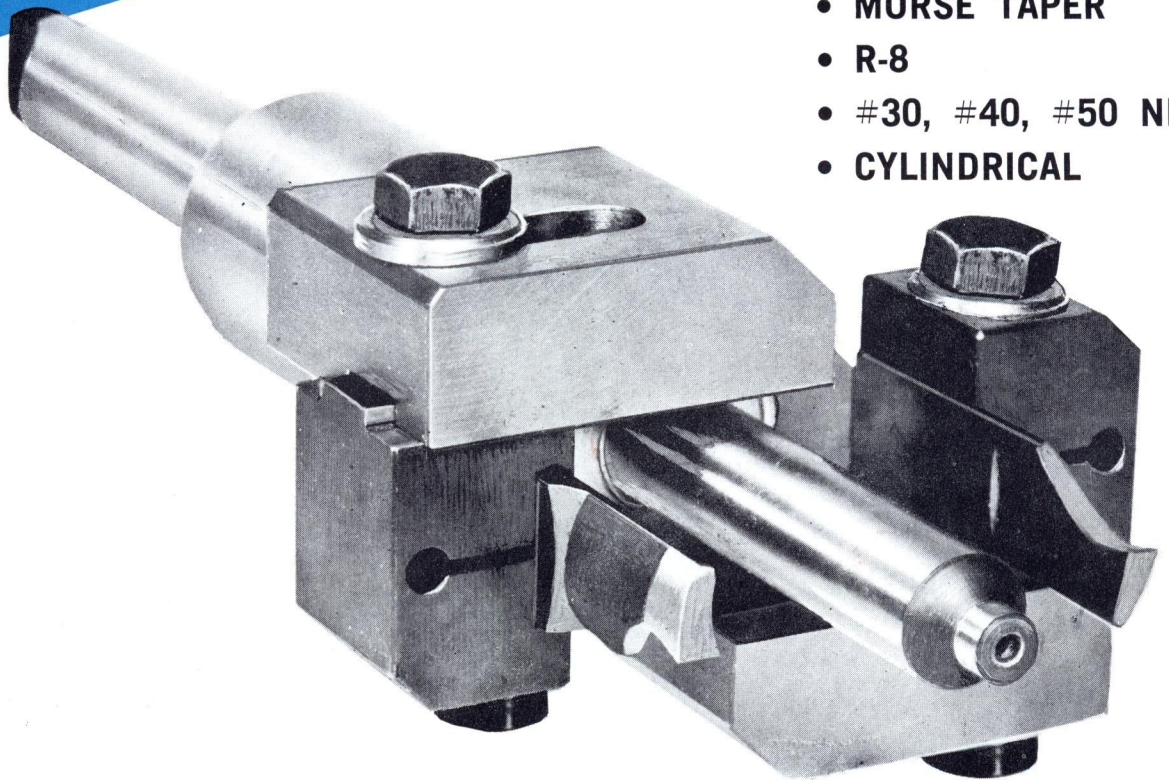
The NEW BOREMASTER

PUTS THE **HOLE**
WORLD IN YOUR HAND



NOW AVAILABLE WITH
SHANKS FOR:

- MORSE TAPER
- R-8
- #30, #40, #50 NMTB
- CYLINDRICAL



Manufacturer reserves the right to
improve construction without notice.

EXCLUSIVELY REPRESENTED & SERVICED BY:

KARL A. NEISE, INC.

56-02 ROOSEVELT AVENUE • WOODSIDE, N.Y. 11377

Tel. (212) 446-7799

**NEISE
MODERNTOOLS**

The **NEW** BALANCED BOREMASTER.

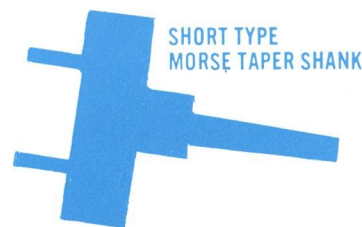
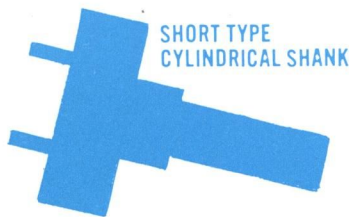
Bores Holes and Cores in ONE OPERATION FAST!

***This Profit-making Tool is available for
Radial Drills — Boring Mills — Engine Lathes —
Turret Lathes and Automated Machines***

- New Trepanning Speed 100% Faster with Greater Accuracy.
- Balanced construction prevents chatter; takes stress and strain off your machine.
- Special formed lead and follower blades.
- Excellent chip load distribution.
- Blades can be removed for sharpening without losing working diameter.
- 5 sizes: 1½" to 11¾" to 8" depth.
- With or without retractable pilot.
- Rigid; Heavy-duty; Easy cutting; Timesaver.

MODEL NUMBER	APPROX. WEIGHT LBS.	INCH DIAMETER CAPACITY	WORKING DEPTH OF STANDARD BLADES SUPPLIED	INCH	MM.	MORSE TAPER SHANKS FOR STANDARD & SHORT TYPES	CYLINDRICAL SHANKS FOR SHORT TYPES	NMBT SHANKS FOR STANDARD AND SHORT MODELS
1	12	1.58" —	4.72"	1.18"	30	3, 4 or 5	1¼", 1½"	30, 40 or 50
BRIDGEPORT → 1	12	1.58" —	4.72"	1.18"	30	R8 BRIDGEPORT		
2	21	1.97" —	6.29"	1.18"	30	4 or 5	1½", 2"	40 or 50
3	36	2.37" —	7.87"	2.16"	55	4, 5 or 6	1¾", 2"	40 or 50
4	43	3.15" —	11.80"	2.16"	55	4*, 5 or 6	2", 2½", 3"	50
5	58	3.94" —	11.80"	2.36"	60	5 or 6	2½", 3"	50

* This No. 4 Morse Taper should only be used for very light work.



ABOVE MODELS CAN BE SUPPLIED WITH OTHER SHANKS UPON REQUEST

PRICES QUOTED INCLUDE 2 pairs of HSS blades (Tungsten-Vanadium-Moly) consisting of one pair for the lower range diameter and one pair for the higher range diameter. Quotations submitted for larger sizes upon request.

FOR GREATEST OPERATIONAL EFFICIENCY it is important to select the shortest blade depth listed for your job need. Before ordering consult the complete list of blade cutting depths on the last page of this brochure.

ALL PRICES F.O.B., OUR WOODSIDE, NEW YORK WAREHOUSE — SUBJECT TO CHANGE WITHOUT NOTICE

FOR ACCURATE TREPPANNING

SPEED and SAVINGS WITHOUT SCRAP WITH BOREMASTER

The new BALANCED BOREMASTER lends itself to the higher machining speeds now being used in modern industry.

The permissible feet per minute with this construction in many cases increased BOREMASTER productivity over 100%.

Many of the aircraft and missile plants find it indispensable where large bores are required to materially lighten the larger structural components in a *minimum of time*.

In the manufacture of tanks, heat exchangers, condenser construction, etc., where many large bores must be made, the single pass through with the BOREMASTER after the pilot hole is made is *4 to 5 times faster* than gradually enlarging the hole with a series of drills and boring bars.

The additional advantage of being able in most cases to salvage the resulting disc or plug for secondary operations is often times very profitable.

Many occasions occur where the BOREMASTER can economically cut discs and washers from scrap plate material which would normally be junked.

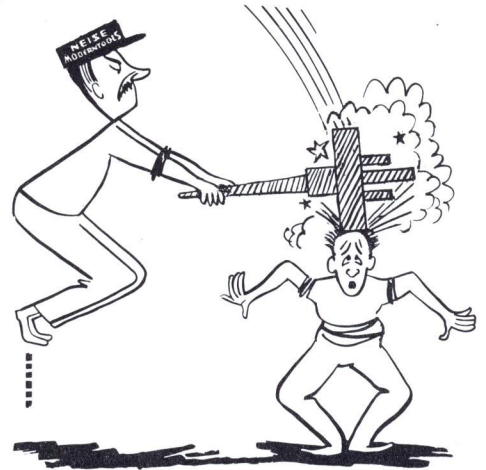
Our short BOREMASTER with cylindrical or Morse Taper shank is used with machines such as turret lathes, boring mills, etc., where the work turns instead of the spindle.

The large variety of extended range toolbits available in high speed steel as well as carbide tipped make both pilot type and the short, non-pilot type very flexible tools.

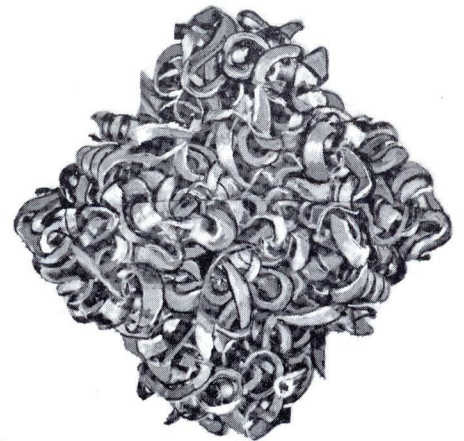
Boring a hole from both sides of the work piece, doubles the depths possible. Savings in usable material and labor saved by minimum clean-up in the removal and storage of scrap chips must be considered in times of close competition.

Occasionally with special form cutters the BOREMASTER can be used for O-Ring and gasket recesses, where a secondary operation is required.

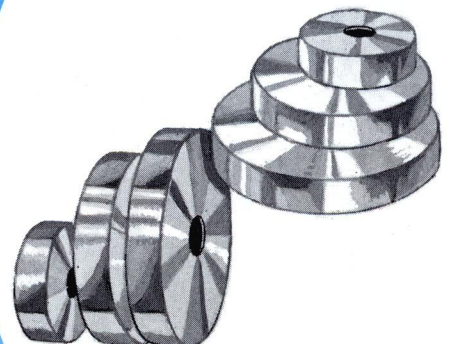
The many years we have distributed the BOREMASTER and thousands of satisfied users make us happy to boast of the advantages of the improved NEW BALANCED BOREMASTER.



WE DON'T NEED this method to get across the greater speed and economy BOREMASTER offers for boring holes 4 to 5 times faster and better.



INSTEAD OF MAKING wasteful time-consuming chips shown above USE the BOREMASTER and get salvageable slugs as shown below.



REPLACEMENT BLADES FOR BOREMASTERS

(For Regular and Pilotless Boremaster Models)

WHEN ORDERING CARBIDE BLADES please state material which the blades are to cut: (iron, cast iron, steel, stainless steel, aluminum or plastic).

FOR SIZE	DIAMETER RANGE		DEPTH RANGE			
	PAIR FOR LOWER RANGE	PAIR FOR UPPER RANGE	HSS		CARBIDE	
			Inch	MM	Inch	MM
1	1.57 - 3.46" (40 - 88 mm)	3.46 - 4.72" (88 - 120 mm)	.78	20	.78	20
			1.18	30	—	—
			1.57	40	1.57	40
2	1.96 - 4.13" (50 - 105 mm)	4.13 - 6.29" (105 - 160 mm)	.78	20	.78	20
			1.18	30	—	—
			—	—	1.57	40
3	2.36 - 4.91" (60 - 125 mm)	4.91 - 7.87" (125 - 200 mm)	1.96	50	—	—
			—	—	.78	20
			1.57	40	1.57	40
4	3.14 - 4.91" (80 - 125 mm)	4.91 - 11.80" (125 - 300 mm)	2.16	55	—	—
			2.75	70	—	—
			—	—	.78	20
5	3.94-7.48" (100-190 mm)	7.49 - 11.80" (190 - 300 mm)	1.57	40	1.57	40
			2.16	55	—	—
			2.95	75	—	—
5	3.94-7.48" (100-190 mm)	7.49 - 11.80" (190 - 300 mm)	—	—	1.18	30
			2.36	60	2.36	60
			3.93	100	—	—

FOR GREATEST OPERATIONAL EFFICIENCY select the shortest blade depth listed for your job need.

ASK FOR CATALOG on our JUNIOR BOREMASTER CIRCLE CUTTER and SUPER BOREMASTER

ALL PRICES F.O.B., OUR WOODSIDE, NEW YORK WAREHOUSE — SUBJECT TO CHANGE WITHOUT NOTICE

the new

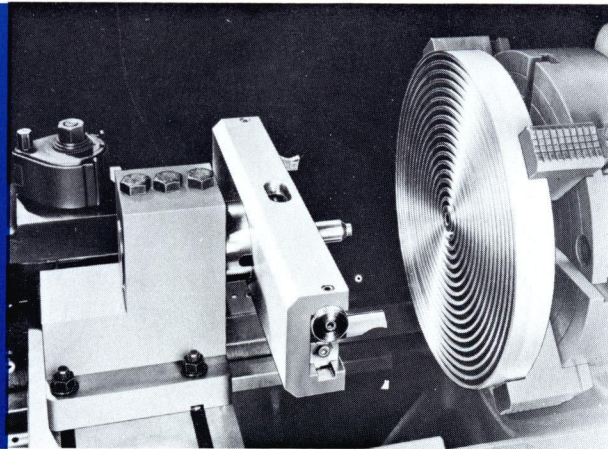
SUPER BOREMASTER

Bores holes and cores
in one
operation
FASTER

The **SUPER BOREMASTER** saves time –
provides faster set-ups. It has the diameter range
of five regular **BOREMASTERS**

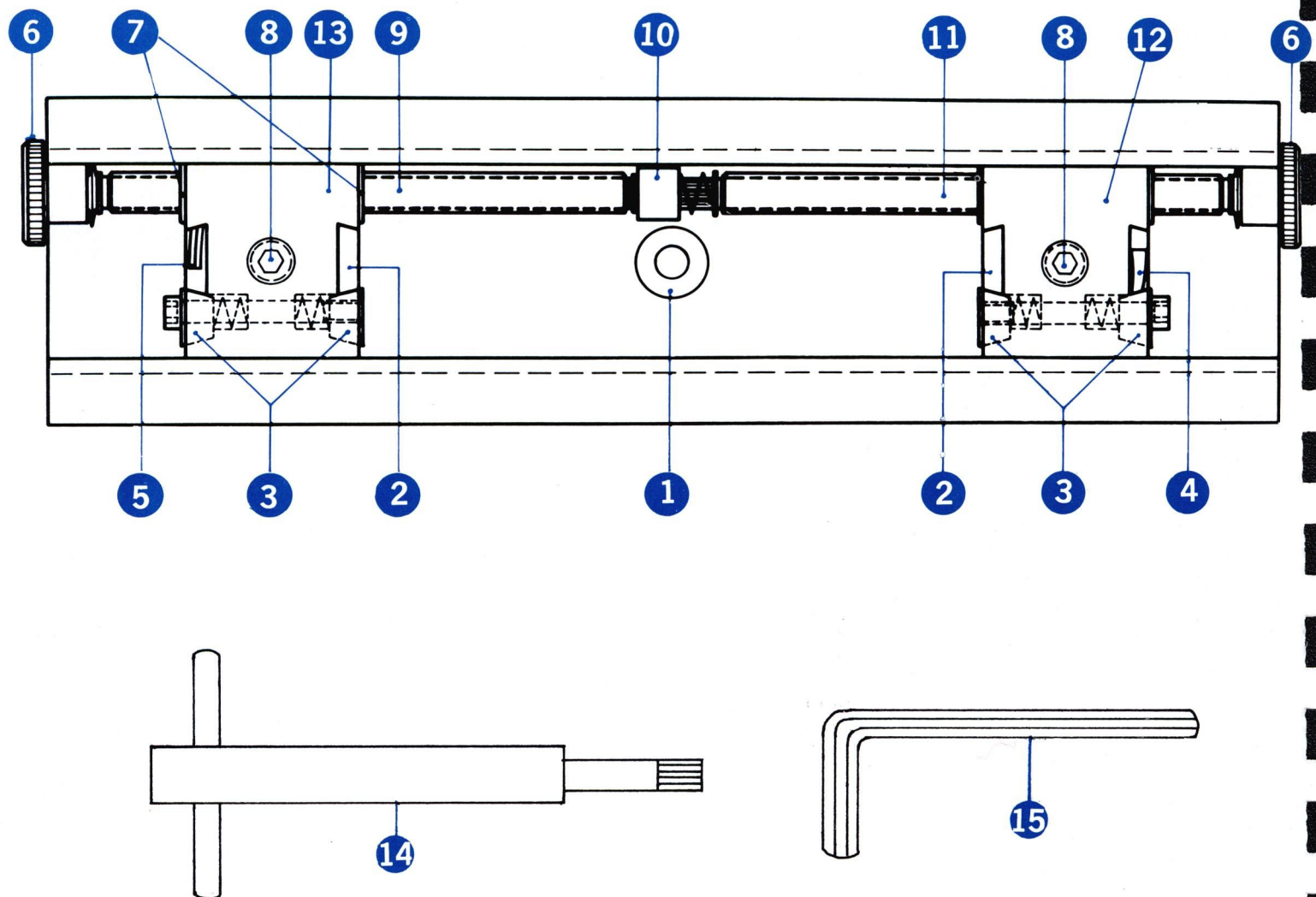
When using a **BOREMASTER** you never end up
with a pile of useless chips –
you have salvageable slugs or cores.

Machining a high temperature,
stainless steel Heat Sink to a
depth of 1.500" with diameters
from 1.970" to 15.000" with a
new **SUPER BOREMASTER**.



FEATURES:

- Cutting range from 1.970" to 15.757" diameter
- Infinitely adjustable with left and right lead screw and calibrated dial
- Available with #5 Morse Taper or #6 Morse Taper shank
- Available with cylindrical shanks from 2-3/8" diameter and up for use on Turret Lathes, Chuckers and Boring Mills
- Available with #50 NMTB shank
- Heavy duty, spring loaded telescoping pilot.



Parts List of New SUPER BOREMASTER

- | | |
|--|--|
| <p>1 Telescoping center pilot, spring loaded</p> <p>2 Filler pieces for unused tool space</p> <p>3 Conical cutting tool clamps</p> <p>4 Follower cutter</p> <p>5 Lead cutter</p> <p>6 Graduated adjusting dial
 1 division = .005" on diameter
 1 revolution = .200" on diameter</p> <p>7 Lead screw wipers</p> | <p>8 Blade holder block clamping screws</p> <p>9 Right hand lead screw</p> <p>10 Disconnect coupling for timing lead screws</p> <p>11 Left hand lead screw</p> <p>12 Left hand blade holder block</p> <p>13 Right hand blade holder block</p> <p>14 T-Wrench for lead screw and cutter clamping</p> <p>15 Allen wrench, 8 mm, for clamping blade holder blocks</p> |
|--|--|

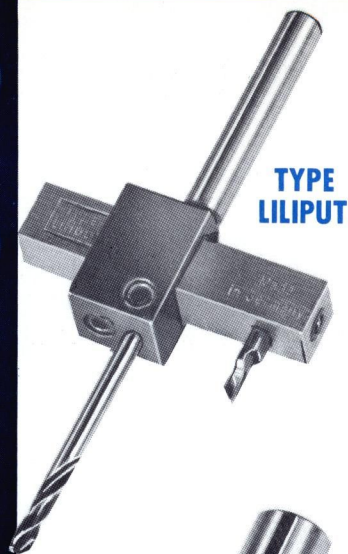
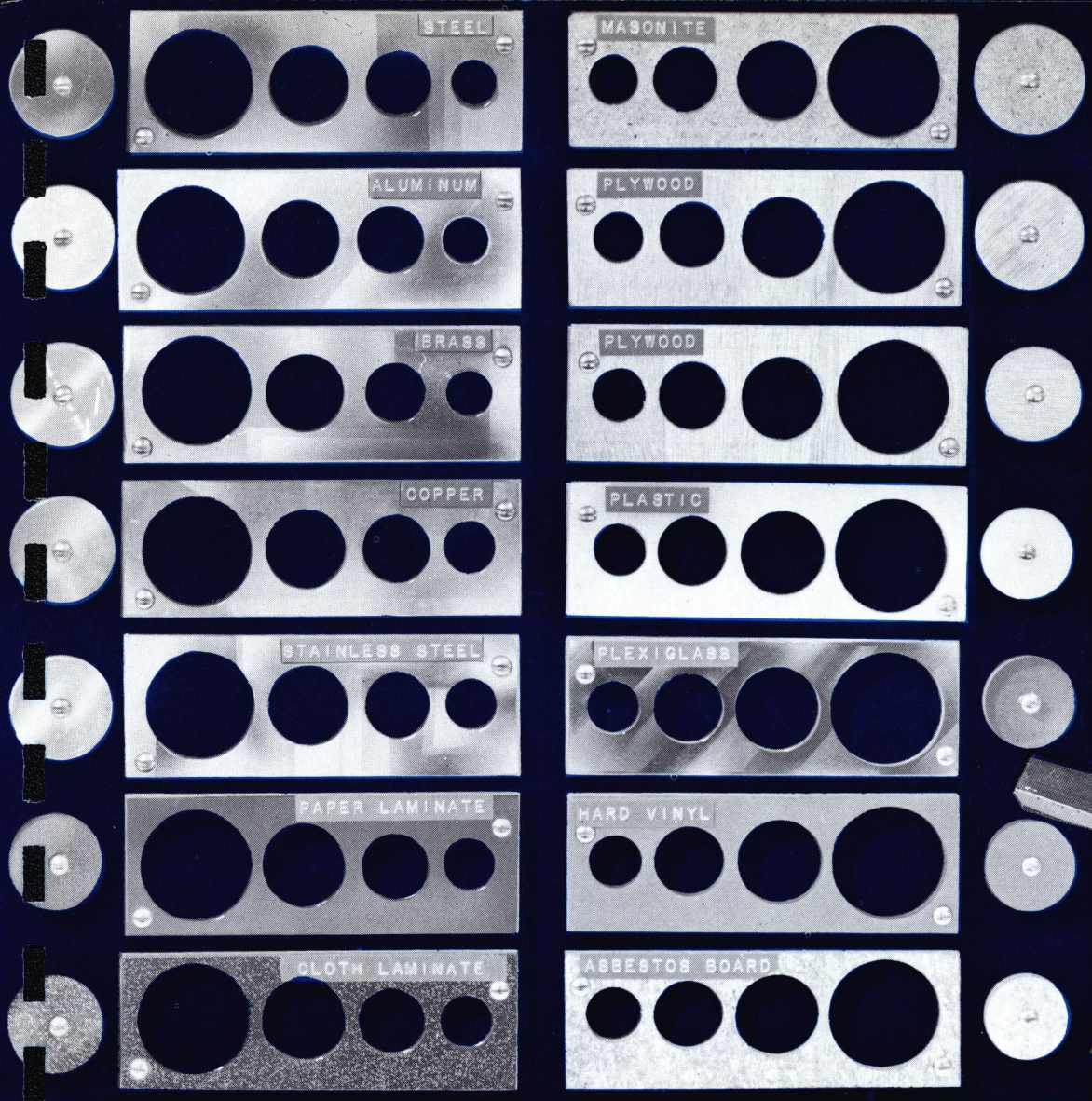
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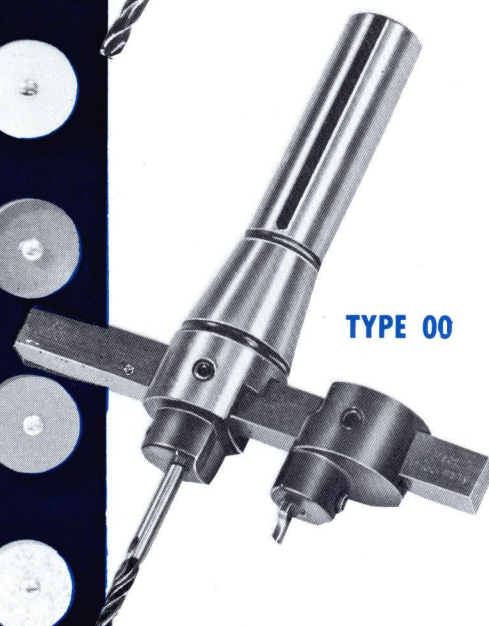
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TYPE
LILIPUT



TYPE 00

JUNIOR BOREMASTER

CIRCLE CUTTERS

Cut perfect holes and discs in seconds with the rigid, heavy duty Jr. **BOREMASTER**.

Three models available to cut circles from .708" to 15.750" diameter economically.

You have an extra bonus of useable discs instead of chips.

By adding extra blade holders to the crossbar, multiple circles can be cut simultaneously.

Materials such as steel, iron, brass, aluminum, masonite, synthetics, plastic, rubber, gaskets and wood can be cut to thicknesses up to 1½" by machining from both sides.

The Jr. **BOREMASTER** with Morse Taper, Bridgeport R8 and straight shanks is ideal when used for operations on engine and turret lathes, milling machines and drill presses. An all-around shop tool!



TYPE 00a



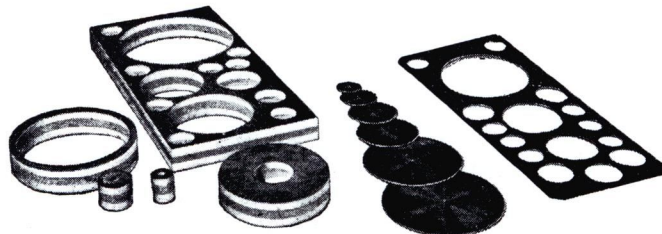
JUNIOR BOREMASTER *CIRCLE CUTTERS*

It is advantageous to cut various materials from both sides. Not only is it possible to cut double the material thickness, it prevents scoring of the machine table and provides a smoothly machined edge on both sides.

The above is especially helpful in cutting rough grained and brittle materials.

Accepted cutting speeds should be judged in S.F.M. rather than R.P.M. because of the wide range of each model Jr. **BOREMASTER**.

Carbide tipped blades for higher cutting speed are available in most of the blade forms.



Model 00a with 3 blades and blade holders for multiple circle cutting.

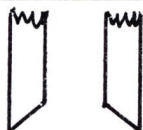
	MODEL		
	LILIPUT	OO	OOa
CUTTING RANGE DIAMETER	From .708" To 3.150"	From 1.180" To 7.875"	From 1.180" To 15.750"
SHANKS	3/8 Cylindrical 1/2 Cylindrical	3/8 Cylindrical 1/2 Cylindrical 2 M. T. 3 M. T. Bridgeport R8	2 M. T. 3 M. T. 4 M. T. Bridgeport R8

Note: Each model is supplied with one HSS cutting blade (#1 for Liliput and #4 for models OO and ooA), one blade holder, one center drill and one cross bar. See below for descriptions and prices of other blades.

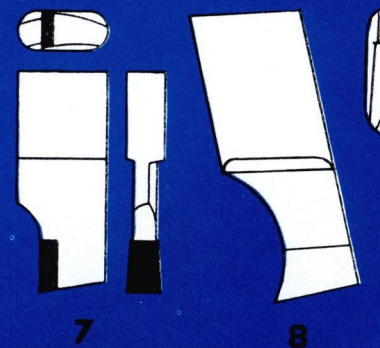
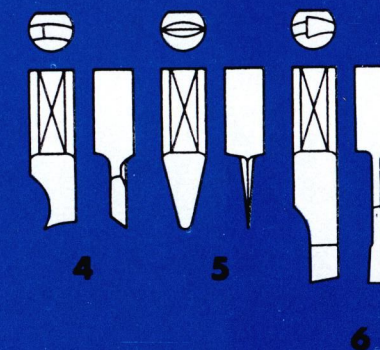
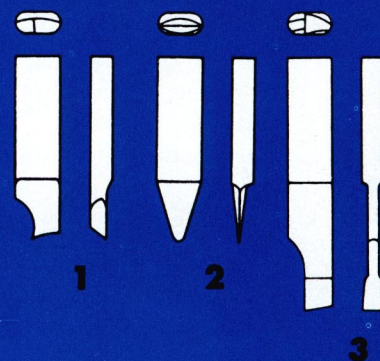
REPLACEMENT BLADES

Blade No.	For MODEL LILIPUT		For MODELS OO and OOa
	Material to be cut		Material to be cut
#1	Thin metal sheets of steel, iron brass, aluminum, etc. to approx. .080" thickness.	#4	Cuts same materials as #1.
		#5	Cuts same materials as #2.
#2	Gasket materials — masonite, rubber, leather, plexiglass. Thin plywood sheets to approximately .400" thickness.	#6	Cuts same materials as #3.
		#7	Cuts same materials as blade #3 (carbide tipped) must be used with special blade holder.
#3	For Heavy Plywood Bores to 1.180" thickness, also novotex, pertinox, lucite and other synthetics from approximately .080" to 1.180" thickness.	New #8	Cuts metal sheets of steel, iron aluminum, etc. from .080" to approximately .400" thickness. The diameter range is approximately .400" to 4.00".

#1 AND #4 BLADES ARE AVAILABLE WITH LEFT OR RIGHT RELIEF ANGLE.



- New lagging cutter and holder reduces chatter.
- This more efficient, advanced special #8 blade must be used with special blade holder.



**NEISE
MODERN TOOLS**

KARL A. NEISE, INC.

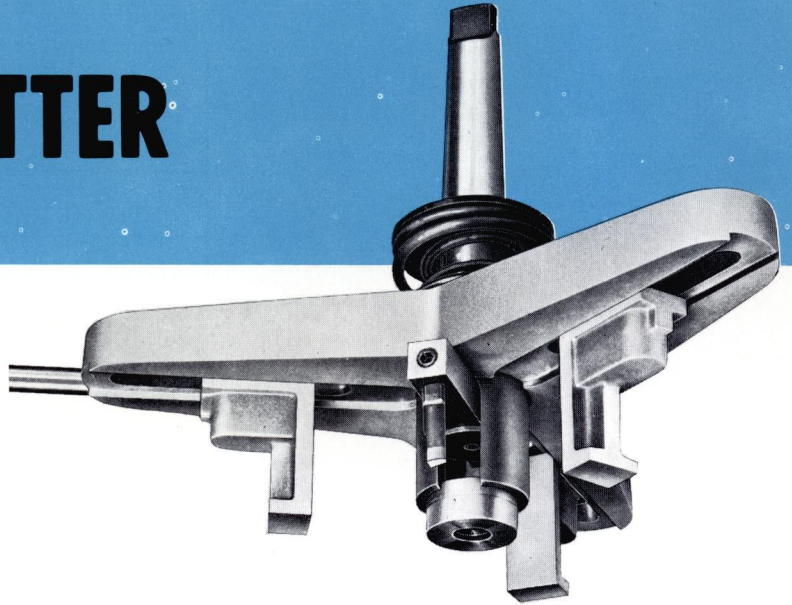
56-02 ROOSEVELT AVENUE • WOODSIDE, N.Y. 11377

Tel. (212) 446-7799

A NEW BOREMASTER from NEISE

OZ DISC CUTTER

Cut clean discs without a center pilot hole in synthetics, masonite, plywood gasket material, etc.



OZ BOREMASTER cuts discs and washers from 1.18" to 7.875" diameter and to a depth of .790"

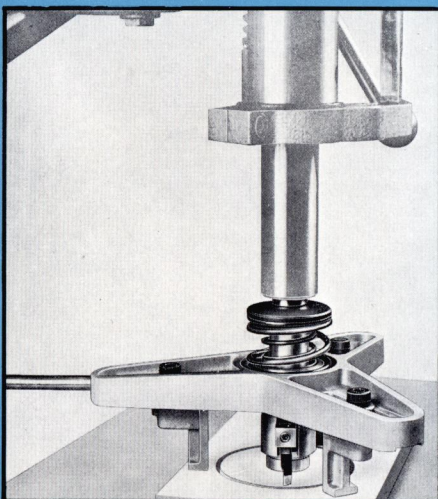
The center pressure pad securely holds down the disc even when the blade cuts through the material. The three outer hold-down legs securely hold the remainder of the material. The outer legs and the center pad are activated with two separately operating tension springs.

An underlay of plywood or masonite should be used to provide breakthrough clearance to protect blades and machine table and assure a smooth cut on material.

A stop rod on the OZ BOREMASTER Disc Cutter prevents rotating of the workpiece and also the hold down assembly when the tool is lifted off the workpiece.

MATERIALS WHICH CAN BE CUT WITH OZ BOREMASTER

Synthetics:	Plexiglass, etc.
Pressed Material:	Masonite, novotex, pertinax.
Wood:	Hardwoods, soft woods, plywood, plastic laminated woods, etc.
Gasket Materials	



Shanks: #2 Morse Taper or #3 Morse Taper, Bridgeport R8
Capacity: 1.18" to 7.875" diameter
Thickness: .790" maximum

Each OZ BOREMASTER is supplied with one #33 HSS blade as standard equipment.



Blade #
OZ 33 HSS
OZ 33 with Carbide Tip

Hardwoods, softwoods, plywood, pressed wood, flake board, plastic laminated wood, synthetics, etc., to .790" depth.



Blade #
OZ 22 HSS

Gasket materials, flake board & thin plywood sheets to .394" depth.

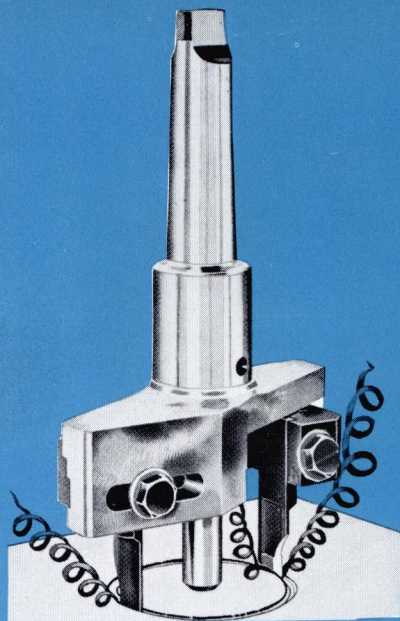
Plexiglass, etc., to .060" depth.

PLEASE GIVE CORRECT BLADE NUMBER WHEN ORDERING BLADES

THE BOREMASTER FAMILY

RANGES. 3/4" to 16" DIAMETER

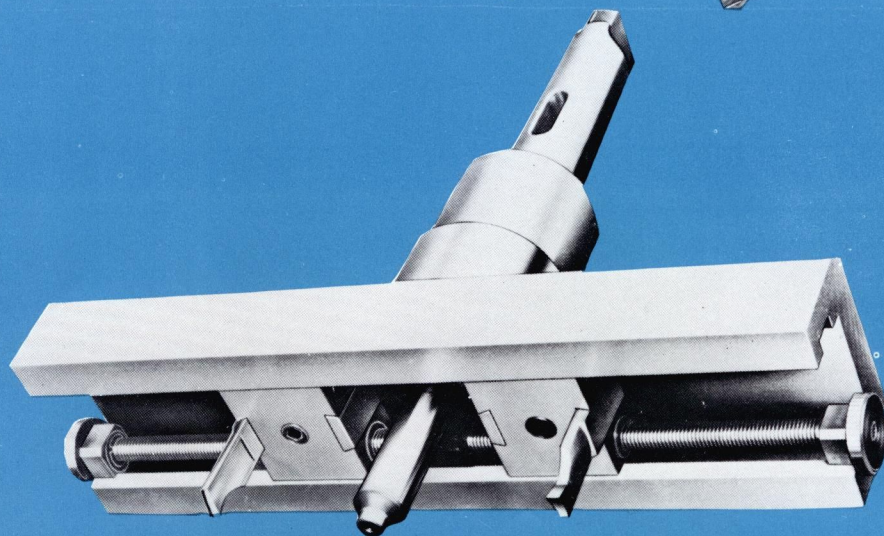
- LET US KNOW YOUR BORING PROBLEMS.
- ASK FOR DETAILED BROCHURE



HEAVY DUTY BOREMASTER



JUNIOR BOREMASTER
CIRCLECUTTERS

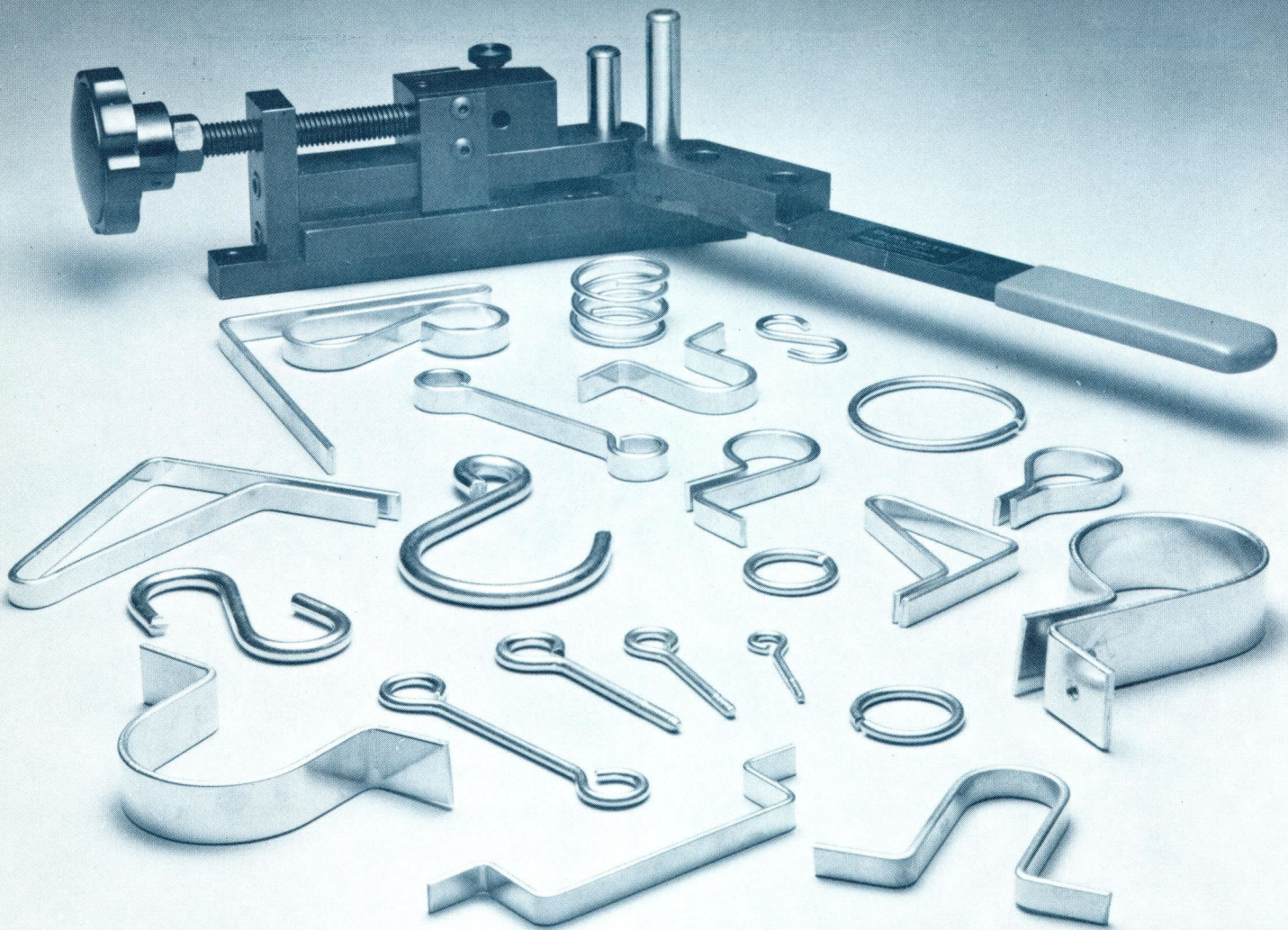


SUPER BOREMASTER

PLEASE SEE
OTHER SIDE
FOR
OZ BOREMASTERS



INTRICATE METAL BENDING MADE EASY ... AND ECONOMICAL!



KARL A. NEISE, INC.

56-02 ROOSEVELT AVE.
PHONE: 212-446-7799

WOODSIDE, NEW YORK 11377
CABLE ADDRESS: KARLNEISE



NEW!

KAN BEND

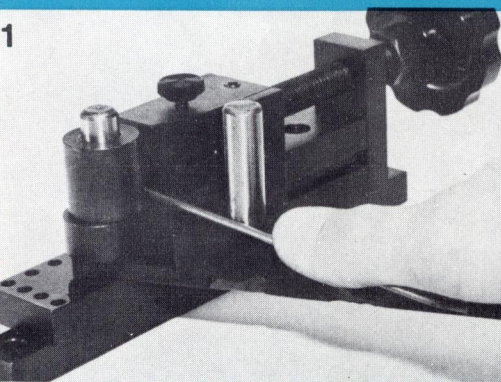
HAND BENDER

YOUR BEST VALUE IN PRECISE METAL BENDING!

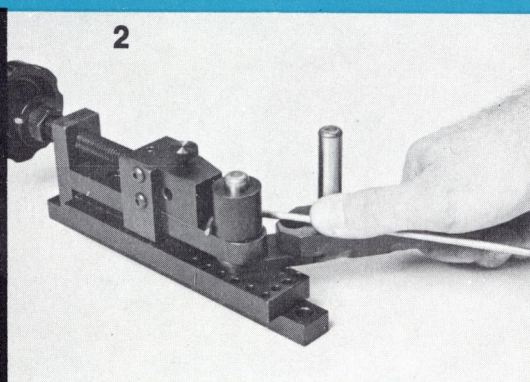
Durable enough to multibend 5/16" diameter wire and 1" x 1/8" flat metal, this compact six pound unit is still portable enough to fit most tool kits. Originally designed as a vise or bench mounted tool for industrial model makers and maintenance departments, the **KAN BEND** hand bender is now used extensively by laboratory, production, and service personnel. It takes only seconds to change operations, make precise

sharp angle bends and produce blue print or prototype parts from most metals including tubing. Production at a rate in excess of 400 bends per hour has been reported. The machine's special capacity of forming closely adjacent bends in several planes makes it an ideal tool for the hobbyist or handyman. Whatever your needs . . . clamps, handles, brackets, hooks, coils or other complex shapes . . .

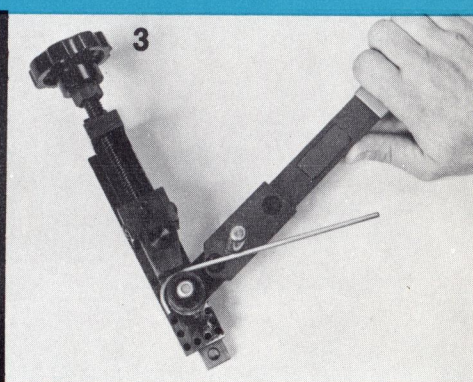
DIRECTIONS



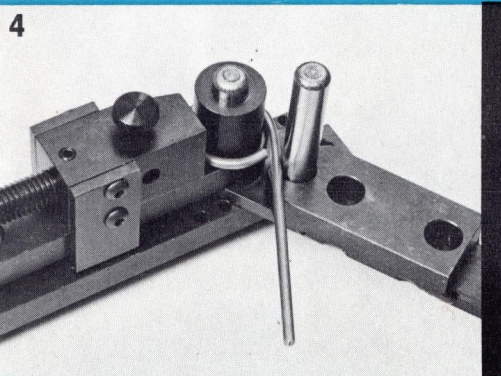
1
TO MAKE EYES OR CENTERED EYES Clamp the material between the jaw and the circle die. Insert the follower pin into the closest suitable hole behind the material.



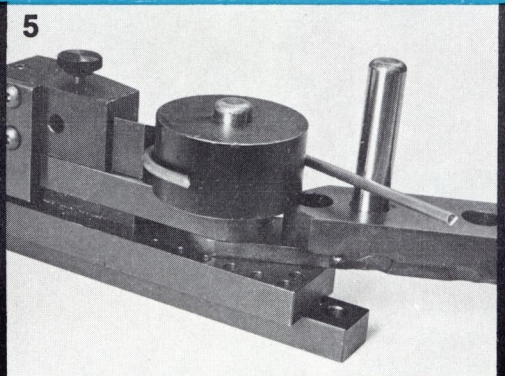
2
Pull the handle in a clockwise direction for 1/4 turn or 90°. Note: Holding the material down with light thumb pressure on the holder will produce parallel bends.



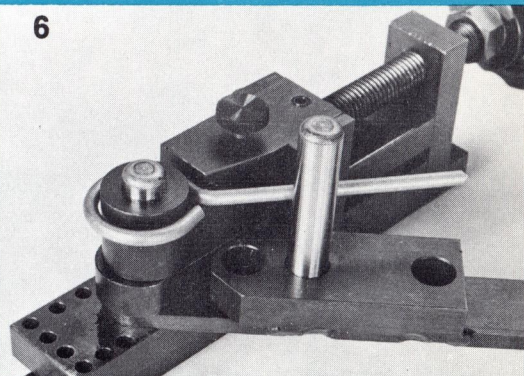
3
Loosen the knob and reposition the material and handle so that the 90° bend is now beyond the starting position or directly opposite the handle.



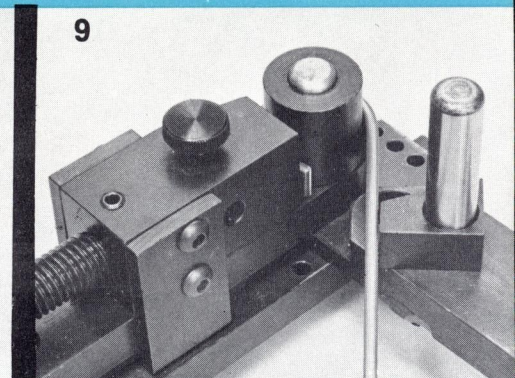
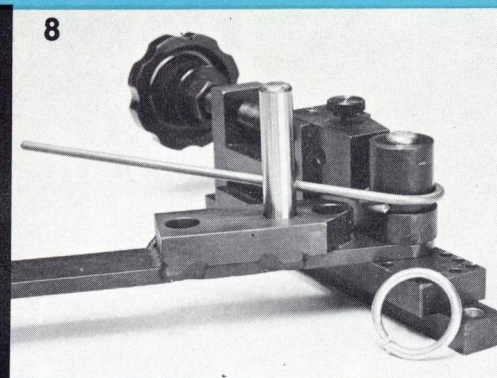
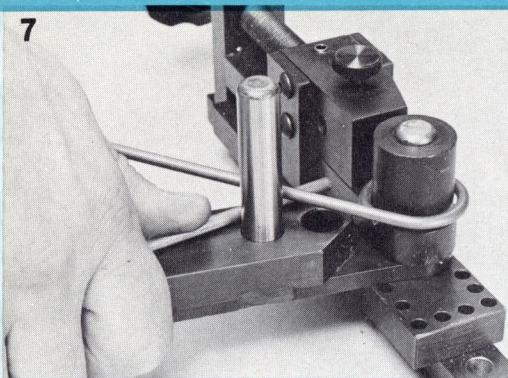
4
Reclamp the metal securely and continue to bend one full revolution or until the material meets itself. In the making of a circle it is necessary to slightly overlap the turn to compensate for the metal springback.



5
When working with heavy wire gauges, it is recommended that because of slippage, the sharp angle die be used to hold the metal. Place the sharp angle die on edge in front of the jaw and center the wire across its hole. Clamp the wire between the sharp angle die and tighten firmly. Bend as required.



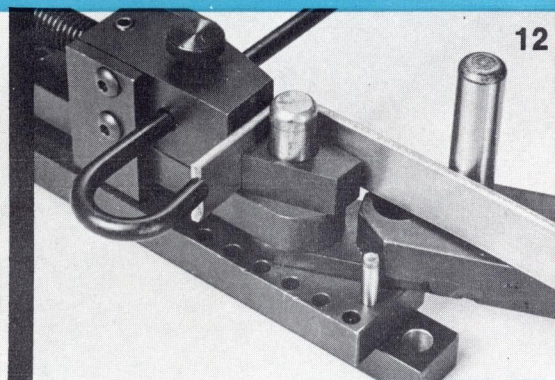
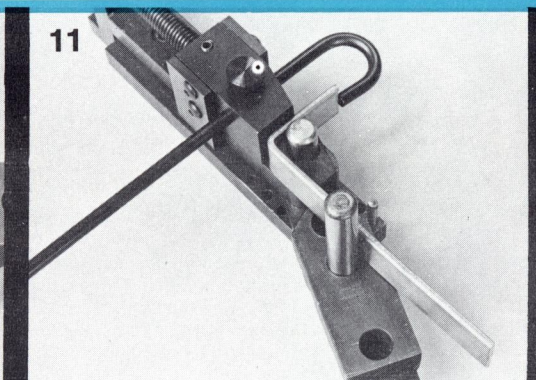
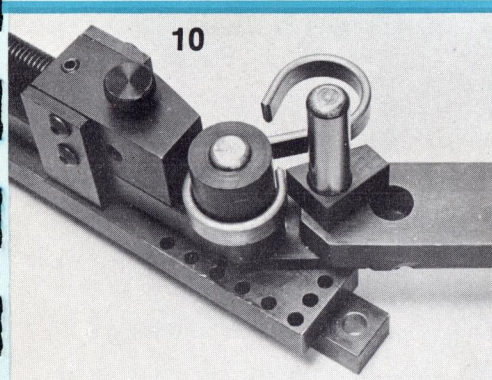
6
To center the eye, loosen the knob and rotate the material and the handle to the starting position. Move the follower pin to the opposite side of the material. Reclamp the metal. Move the handle in a counter clockwise direction until it stops against the bender.



BENDING CIRCLES, COILS OR LOOPS Repeat Steps 1, 2 and 3 except that in starting the third bend, lift the material slightly with your fingers or insert a slightly thicker piece of metal under the material and bend in a clockwise direction.

Remove the material if only one circle or ring is desired and cut off excess. However, if a coil or more rings are needed, reclamp the metal and continue as necessary. Spaced coils can be made by slipping spacers of a thickness equal to the spacing required between the loops as they are bent.

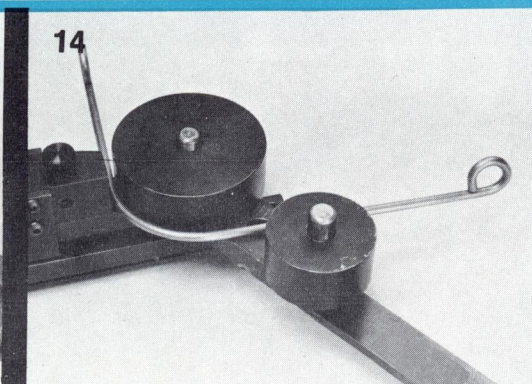
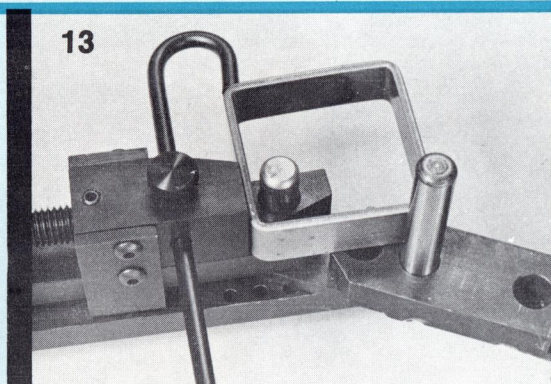
Making an "S" with close adjacent bends is achieved with the square angle die from predetermined lengths of metal. Align the edge of the material with the center of the circle die. Clamp the metal and make one complete turn of the handle.



Unclamp the metal and position the first loop on the angle side of the jaw. Place the sharp angle die over the follower pin and bend in a counter clockwise direction.

USING THE GAUGE The gauge can be used on either side of the bender. Just slip the gauge through the hole provided in the jaw. Measure the distance required from the center of the bender to the edge of the gauge and tighten the gauge locking screw.

The bend stop pin may be used for repeated bends. Make a 90° bend or any desired angle and insert the bend stop pin in front of the handle. Loosen the knob and remove the material. Repeat as required.



To make a square with sharp angle bends, use the gauge and the bend stop pin. Position metal against the gauge as shown in Fig. 11 making one 90° bend. Turn the metal 90° locating it against the gauge. Tighten firmly and move the handle to stop pin in a counter clockwise direction. Reposition material making final bend.

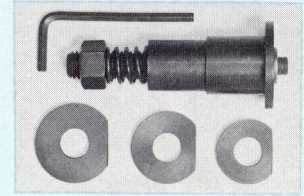
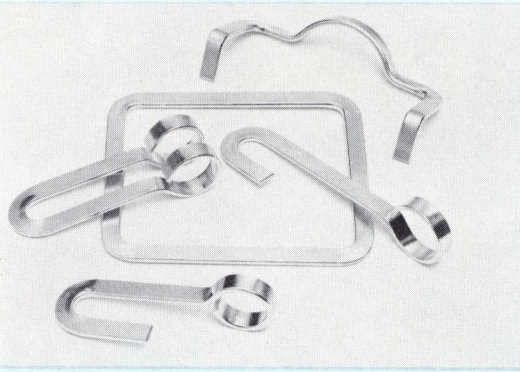
MULTIPLE PLANE BENDS Proper planning of bends within size limitations of the bender is required. The replacement wire handle shown above was first bent forming the 2 eyes with standard 1/2" dia. circle pin. The final bends, using a 3" and a 2" circle die (accessory tooling), were first centered on the 3" circle die, then using the 2" circle die as a close follower, two 90° bends were made.

KARL A. NEISE, INC.

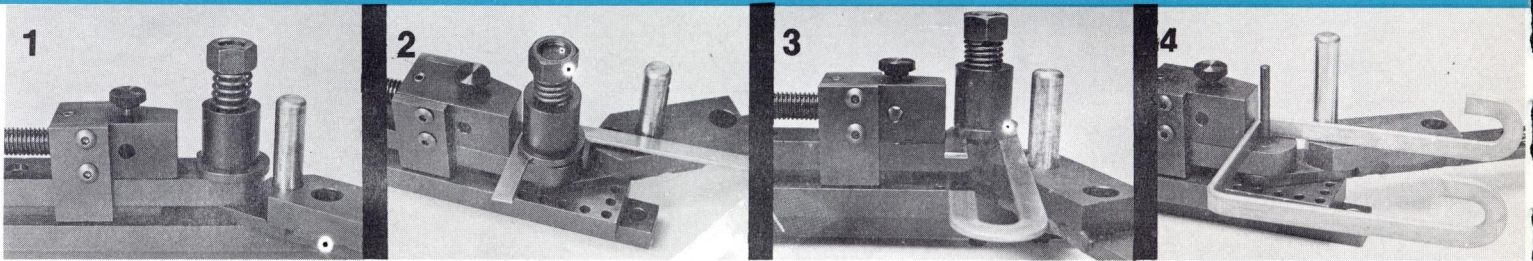
**NEISE
MODERNTOLS**

EDGE BENDING

The multitude of shapes and forms possible from the basic tooling is greatly expanded through the addition of the **EDGE BENDING KIT**. This unique, patented, level plane metal retainer, exerts compression during edgewise bending and controls deformation to a minimum. Installed in minutes, it offers a new horizon of metal forming previously found only in high priced equipment. While metal for edgewise bending must be sufficiently ductile—high strength products results. Capacity is .120 inch in thickness to $\frac{3}{4}$ " width.



DIRECTIONS



1 Insert the forming post into the bender with the threaded part of the post up. Turn the bender on its side and place the small washer over the 10-32 x 750 lg. cap screw. Insert the screw and washer into the bottom of the forming post and tighten with Allen wrench. Turn the bender over and mount in a vise or to a bench. Select one disc of the proper size for the material and place it over the forming post. Put on either the $\frac{7}{8}$ " or 1" dia. compression sleeve—($\frac{7}{8}$ " for use with 2 smaller discs). Put on the spring and nut.

2 Insert the metal under the disc and lock the jaw against the material. Tighten the nut against the spring applying pressure to the metal (over tightening will not allow the metal to pass under the disc and insufficient pressure will allow the metal to deform). Holding the metal flat during bending, make short movements of the handle with the follower pin close to the metal.

3 Bends under 180° can readily be slipped out from under the disc by loosening the nut slightly; but for bends over 180° the nut, spring, collar and disc must be removed.

4 Combined bending of normal bends and edgewise bending greatly expands the usage of the bender. A properly planned piece of this type was made in 4 bends. First the two edgewise bends were made followed by standing the metal on edge and using the $\frac{1}{4}$ " circle pin to complete the two 90° bends.

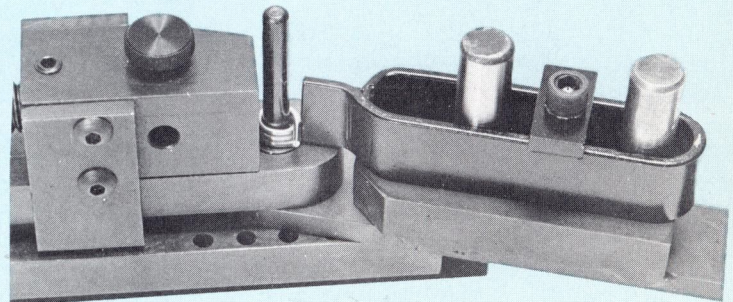
NEW!

CLOSE FOLLOWER

ATTACHMENT NO. 51200

DIRECTIONS

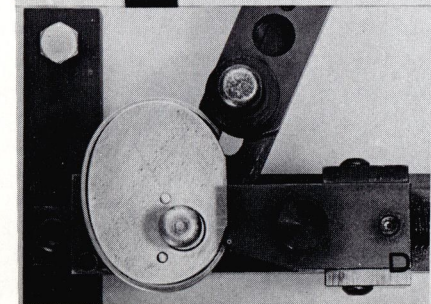
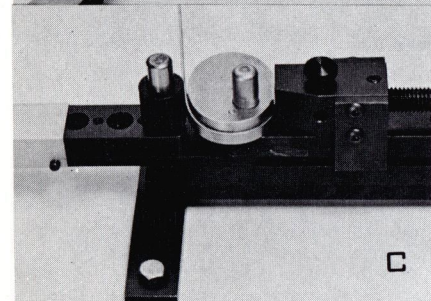
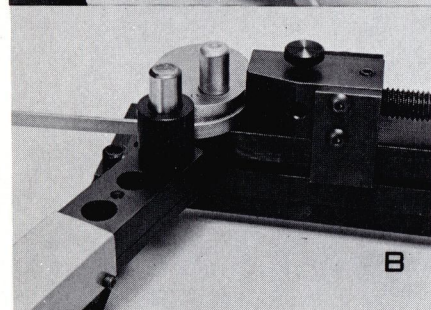
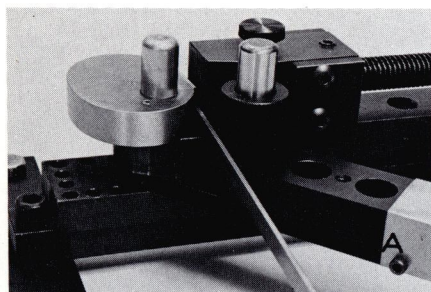
Place (2) $\frac{1}{2}$ inch diameter pins into the last two holes in the handle and drop the **CLOSE FOLLOWER ATTACHMENT** over the pins as illustrated. Adjust to wire size and secure $\frac{1}{4}$ " x 20 clamping screw to form smaller diameters.



If your KAN BEND has no $\frac{1}{4}$ " - 20 hole in the handle, drill and tap hole or order: **CLOSE FOLLOWER ATTACHMENT NO. 51204.**

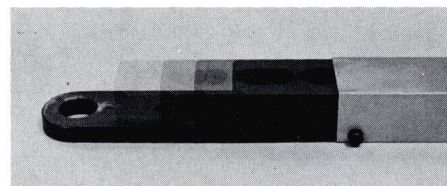
KAN BEND_{HAND BENDER}

INTRODUCING THE NEW **FORM-MATIC** HANDLE



Now you can add new dimensions to the versatility of your KAN BEND multi forming hand bender !

The all-new FORM-MATIC handle, with its' exclusive spring-loaded follower, will gently glide around the contour of your die giving you accurate and consistant duplication. The photos shown demonstrate the handle following an elliptical die in one smooth movement . . . no need for multiple set-ups.



\$29.00

Ordered as a single item add
\$1.50 packing & U.P.S. charges.

Instructions

Remove the 1/2" diameter pin and slip out the handle. Insert the **FORM-MATIC** handle . . . align the center hole with the hole in the handle visually and replace the 1/2" pin.

As in normal bending, clamp the material behind the form tool. Pushing the handle back in a counter clock-wise direction, insert the follower pin into the handle behind the material. (A)

Pull the handle in a clockwise direction. (B)

The follower pin automatically moves back and forth following the contour of the die. (C)

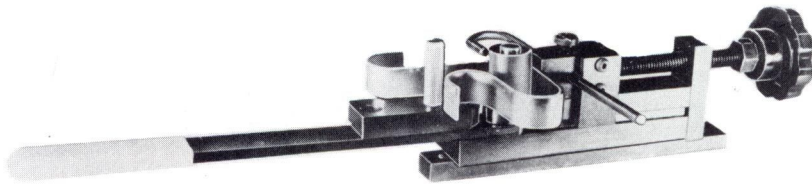
To remove the pin, continue moving the handle until the material springs away or the follower retracts from the die. (D)

For metal bending instructions refer to the Karl A. Neise brochure
"INTRICATE METAL BENDING MADE EASY . . . AND ECONOMICAL"

KAN BEND

* TOOLS FURNISHED WITH BENDER

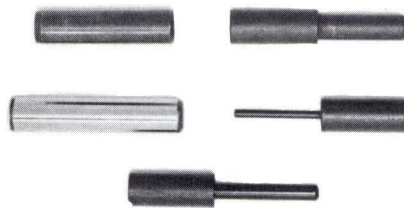
PRICE LIST NO. 2



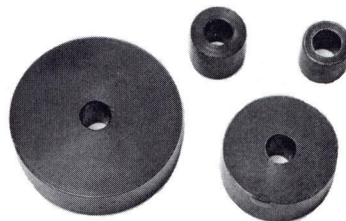
GAUGE AND PIN



CIRCLE PINS



CIRCLE DIES



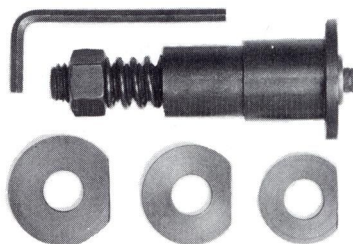
SHARP & SQUARE BEND DIE



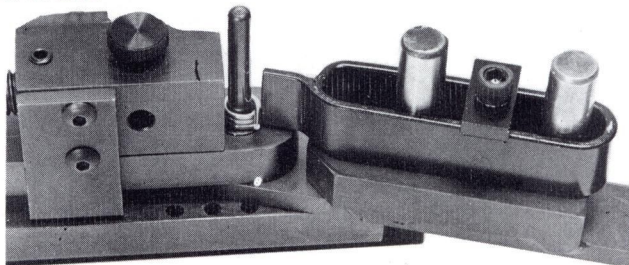
CIRCLE LOOPS (FOR HAND FORMING)



EDGE BENDER KIT



CLOSE FOLLOWER (ATTACHMENT)



DESCRIPTION	PRICE
	84.00
* Bend Locating Gauge and Pin	1.50
1/8" Dia. Pin	2.00
* 3/16" Dia. Pin	2.00
* 1/4" Dia. Pin	2.00
3/8" Dia. Pin	2.00
* 1/2" Dia. Pin	2.00
7/8" Dia. Circle	4.00
* 1" Dia. Circle	4.00
2" Dia. Circle	4.00
3" Dia. Circle	6.00
* Sharp Angle Die	3.00
4" Dia. Circle	6.00
5" Dia. Circle	6.00
6" Dia. Circle	9.00
7" Dia. Circle	9.00
8" Dia. Circle	9.00
Circle Set (2" - 8" Dia.)	45.00
Edge Bender Kit	24.00
Close Follower Attachment	9.00
Model 51200 or Model 51204	See Catalog

KARL A. NEISE, INC.

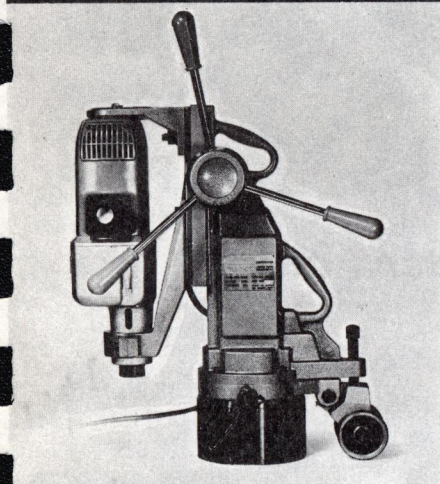
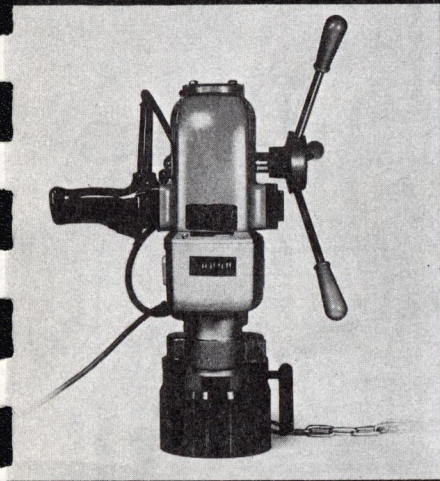
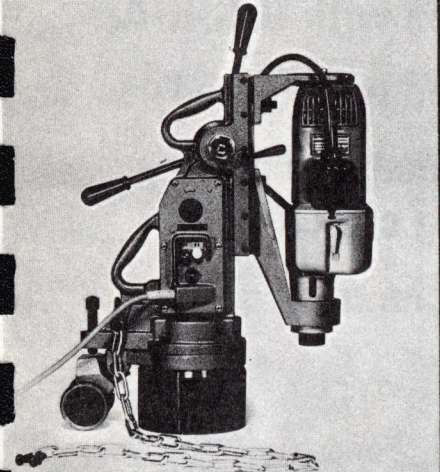
56-02 ROOSEVELT AVENUE, WOODSIDE, N.Y. 11377
Tel.: (212) 446-7799 - Cable Address: KARLNEISE



MAG BASE /4 SPEED DRILL



\$1,250.



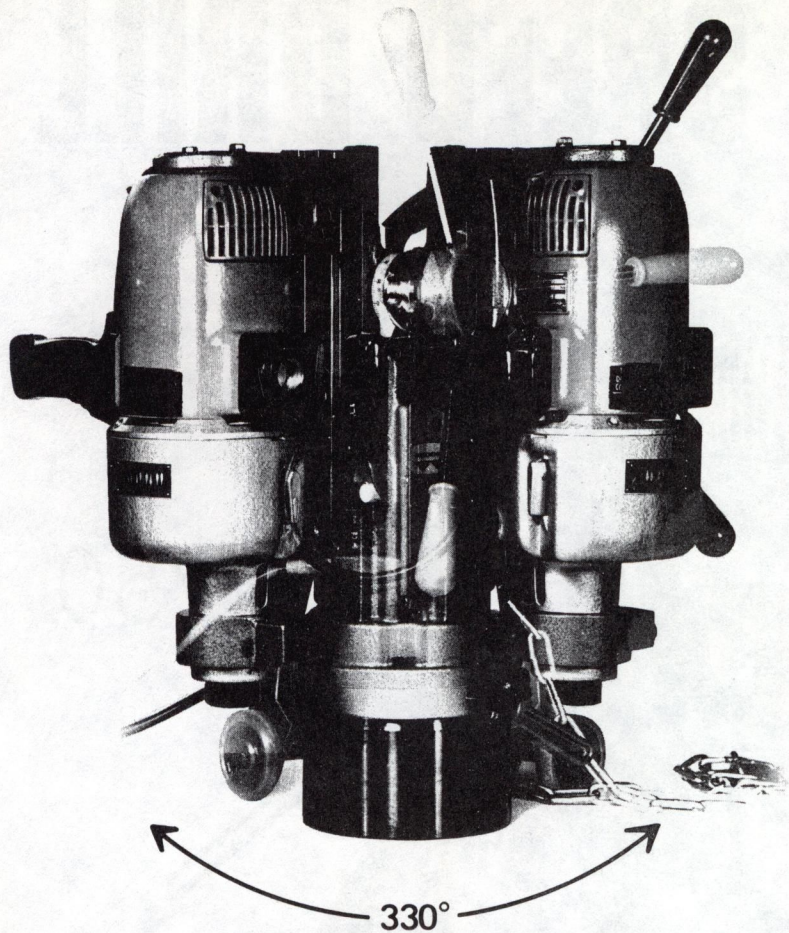
lighter weight - greater holding power

**NEISE
MODERNTOOLS**

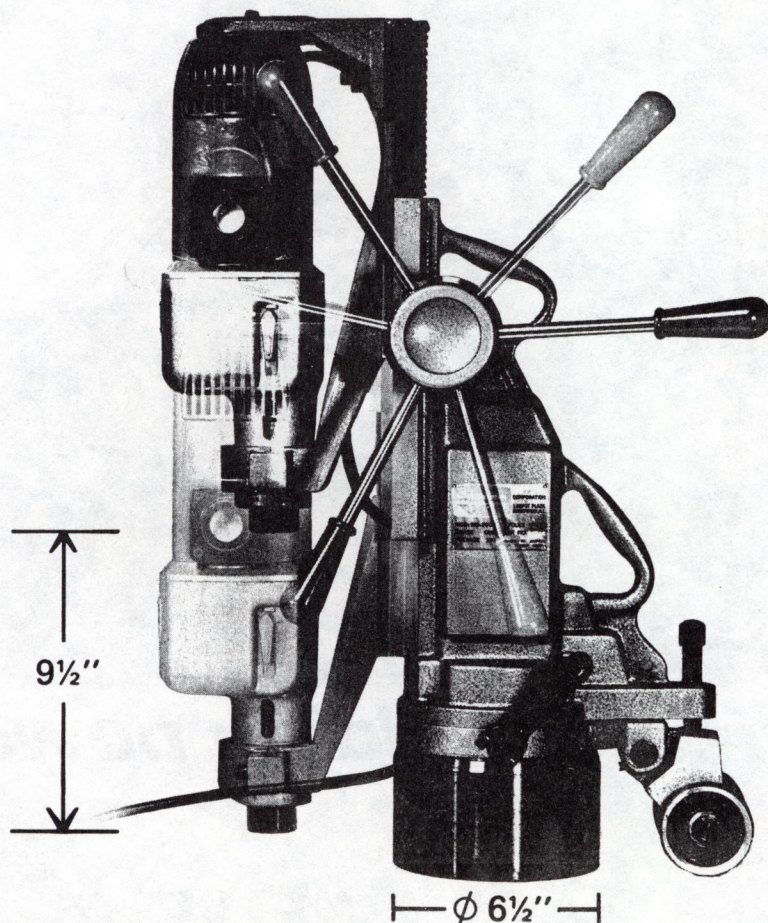
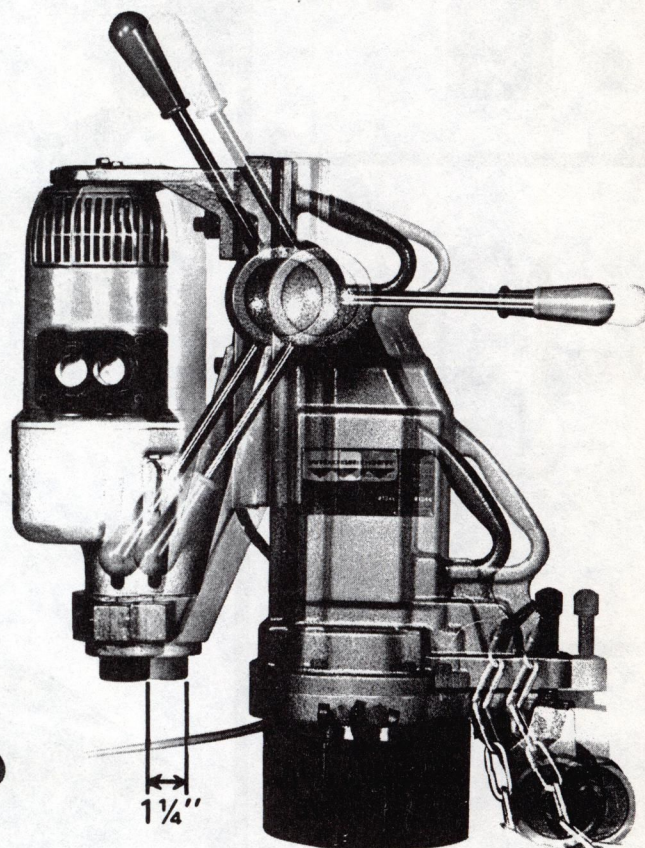
KARL A. NEISE, INC.

56-02 ROOSEVELT AVENUE • WOODSIDE, N.Y. 11377

Tel. (212) 446-7799



- Double insulated
- Complies with O. S. H. A.
- Rack and pinion feed
- Linear measuring and drag clutch
- Safety chain



SPECIFICATIONS:

MB 2003/1 REV

Height	20.6"
Weight	80 lbs. (Base 53 lbs.)
Magnetic Holding Force	3,000 lbs.
Base Diameter	6.5"
Voltage	110
Phase	Single
Cycles	60
Total Amps, Combined	15 (Base 4 Amps)
M.T. Socket	No. 3
Speeds	

Reverse Model . . . 100/150/260/420

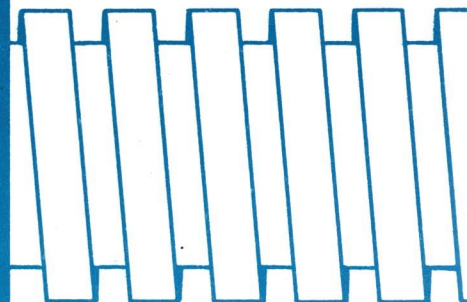
Includes taper drift, wrenches and tool kit.

KARL A. NEISE, INC.

56-02 ROOSEVELT AVENUE • WOODSIDE, NEW YORK 11377



**V
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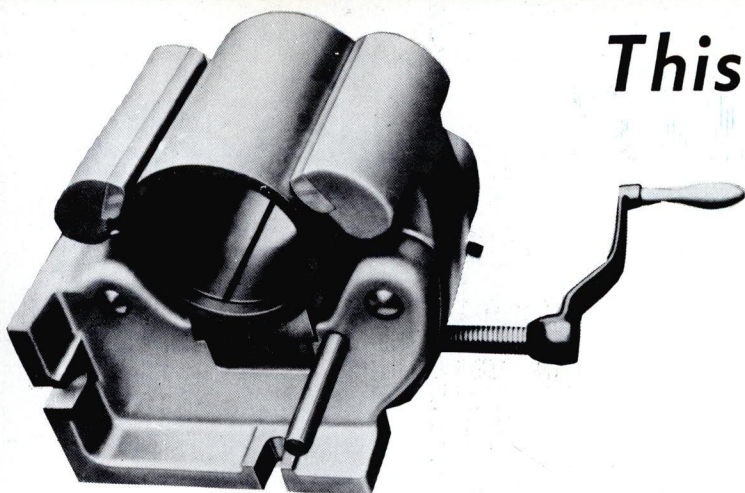
AND OTHER WORKHOLDING TOOLS

"Our 28 Years of Serving Industry are Your Quality Assurance"

**NEISE
MODERNTOLS**

presents . . .

6 lines of gr-r-ipping holder-downers for your workpieces



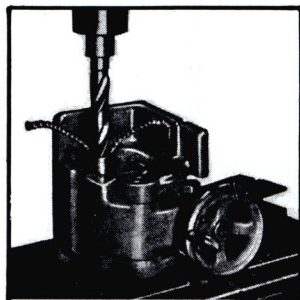
This tough, **N-CIRCL-IT** operates in **THREE** planes



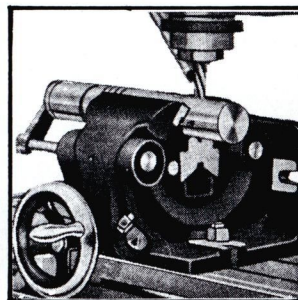
The chameleon of vises — fits on drill presses, millers, shapers, key seaters, power saws, welding fixtures, electric discharge machines.

- Holds many shapes in powerful, high tensile aluminum alloy jaws.
- Automatically self-centers workpiece under spindle.
- Hardened steel reversible vee-blocks semi-steel base.
- Three degrees of accuracy available — standard, precision and paired-in-height.
- Choice of four sizes, two accuracies in each size.
- Workstop built-in.

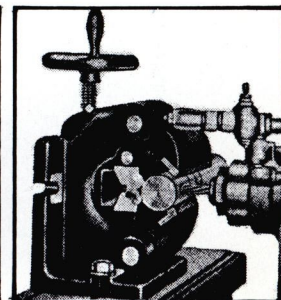
Models Junior Samson & Goliath



SIDWAYS

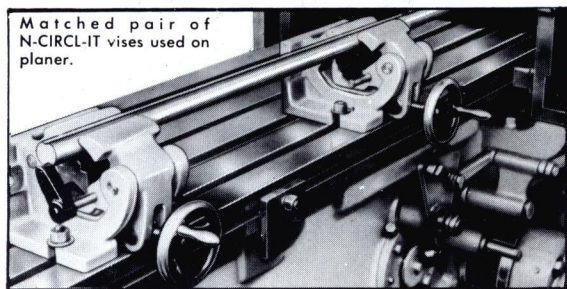


HORIZONTAL

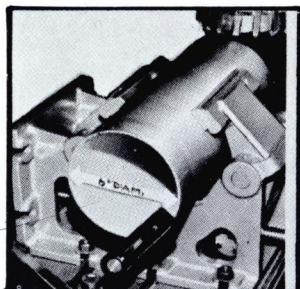


VERTICAL

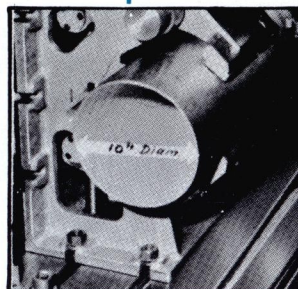
Model Super Goliath



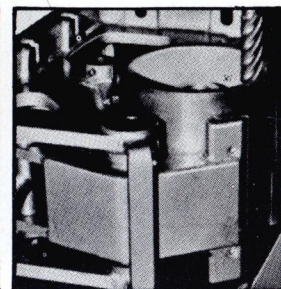
Matched pair of N-CIRCL-IT vises used on planer.



HORIZONTAL



VERTICAL

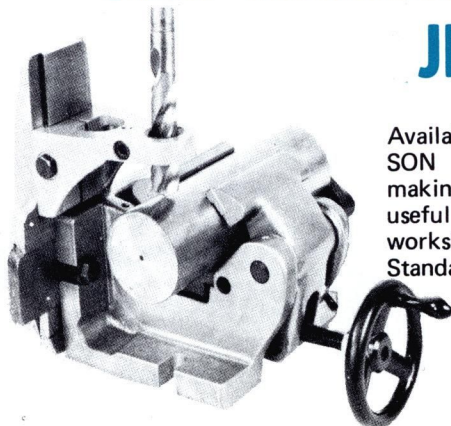


SIDWAYS

SPECIFICATIONS

Model	Standard Accuracy	Precision Accuracy	Paired In Height	Capacity	Width of Jaws	Grooves	Center (Vert.)	Weight (Lbs.)
JUNIOR	.006"	.002"	.0012"	13/32" - 3-1/8"	4-3/8"	9/16"	4-3/4"	41
SAMSON	.006"	.002"	.0012"	13/32" - 4"	4-3/8"	9/16"	4-3/4"	44
GOLIATH	.006"	.002"	.002"	2" - 6-1/8"	7-1/8"	5/8"	7-1/8"	132
SUPER-GOLIATH	.012"	.006"	.006"	1-3/16" - 10-1/4"	9-7/8"	5/8"	13"	337

NEW ADJUSTABLE DRILL JIG FIXTURE

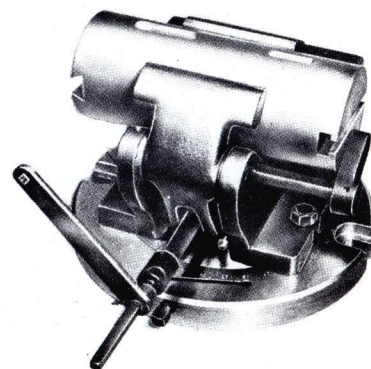


Available for JUNIOR, SAMSON and GOLIATH Models, making the N-Circl-It Vise more useful than ever! Practically a workshop by itself. Will accept Standard Drill Bushings.

NEW 360 SWIVEL BASE

This Swivel Base extends the application possibilities of the N-Circl-It vises in the performance of angular measuring operations in 3 planes.

Clamping of the Swivel is non-distorting.



**NEISE
MODERN TOOLS**

CHIP-FREE DRILLING FIXTURE

for cylindrical parts

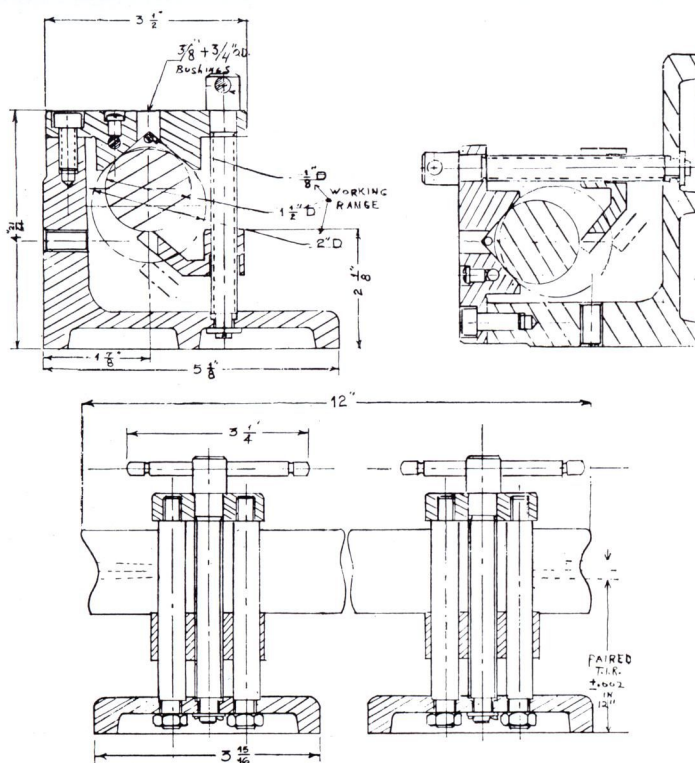
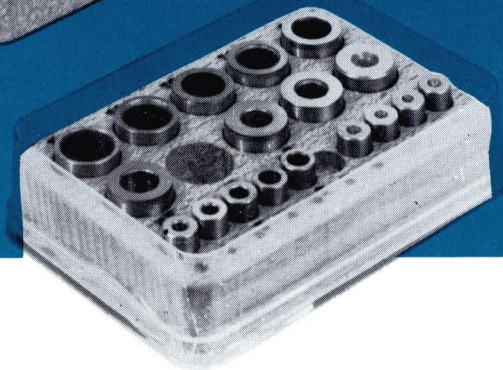
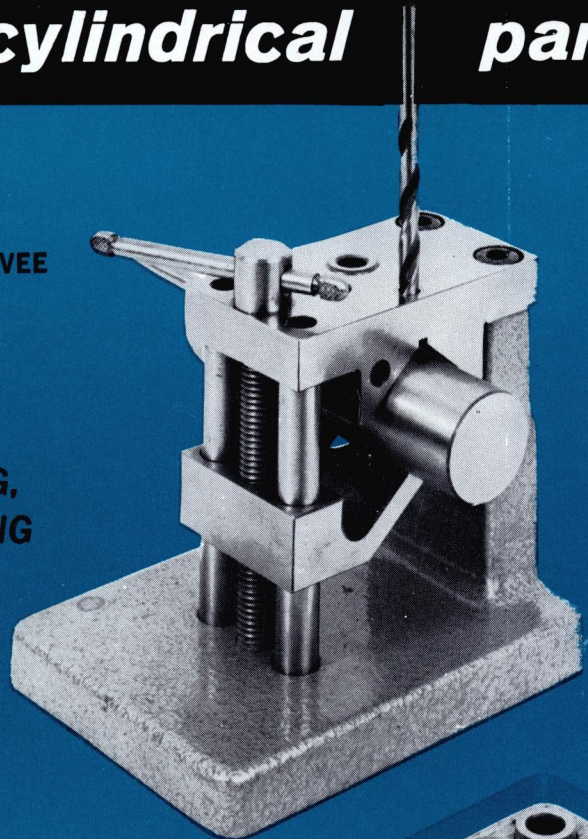
- **RAPID CLAMPING**
- **SELF-CENTERING**
- **POSITIVE, FIXED POSITIONING —**
DRILL IS ALWAYS IN THE CENTER OF THE VEE
- **LENGTH STOP INCLUDED**
- **ALWAYS CHIP-FREE**
- **INVERTED VEE-BLOCK ASSURES PRECISE, REPETITIVE MACHINING**

**IDEAL FOR PRECISION DRILLING,
MILLING, SHAPING and SLOTTING**

UNIVERSAL APPLICATIONS

Use for vertical and horizontal drilling, end drilling and milling; also angled drilling and milling.

- Vee Block hardened and ground. Rigidly supported on both sides for greater precision.
- Adjustable clamping arm hardened and ground, relieved for through drilling.
- Rigid Semi Steel Base.
- Special paired in height models parallel within $\pm .002$ " with a 12" test bar.



CAPACITY

Clamping capacity $\frac{1}{8}$ " to 2" dia.
Drill capacity to $\frac{9}{16}$ "

WEIGHT

6 $\frac{3}{4}$ lbs.

OPTIONAL SET OF BUSHINGS

- Small Range:** Outside $\frac{3}{8}$ "
for drills: $\frac{1}{8}$ ", $\frac{9}{64}$ ", $\frac{5}{32}$ ", $\frac{3}{16}$ ", $\frac{7}{32}$ " and
3 spare soft blanks for your own sizing.
- Large Range:** Outside $\frac{3}{4}$ "
for drills: $\frac{1}{4}$ ", $\frac{5}{16}$ ", $\frac{3}{8}$ ", $\frac{7}{16}$ ", $\frac{1}{2}$ ", $\frac{9}{16}$ ",
and 2 spare soft blank for your own
sizing.

VERSATILE, WIDE RANGE DRILLING FIXTURE WITH 1001 USES IN EVERY SHOP

PRECISION UNIVISE Model UW

90° INCLINABILITY

of vise with angle plate from horizontal to vertical.

360° PIVOTABILITY

of whole device on baseplate.

360° ROTATABILITY

of vise on angle plate.

All bearing and contact surfaces, fine-ground to a tolerance of $\pm .0002''$ ($\pm 0.005\text{mm}$).

INCLINES, PIVOTS, REVOLVES,

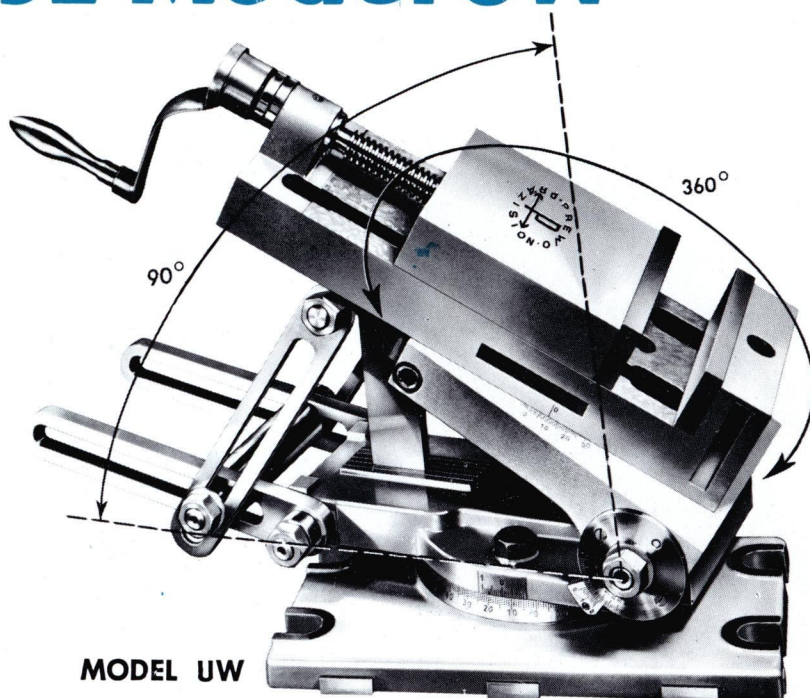
solves problems in multiple planes and angles.

At last, a **genuine 2-in-1 vise**—that unites machining and measuring—that clamps and positions workpieces for marking and gaging—that grips with the utmost power without distortion.

The **durable, hardened steel vise** is absolutely rigid (even under the heaviest duty). Has an extremely low clamping surface which is always desirable.

The **sine bar tilting table** meets sine plate accuracy; ± 10 seconds of arc. Quick, accurate vernier scale permits reading of $\pm 1/10^\circ$ at swivel base— $1/5^\circ$ at angle plate.

Think of what you'll save with this universal vise! No special jigs! No tool setting! No measuring fixtures! Your PREWO Vise pays for itself in jig time.



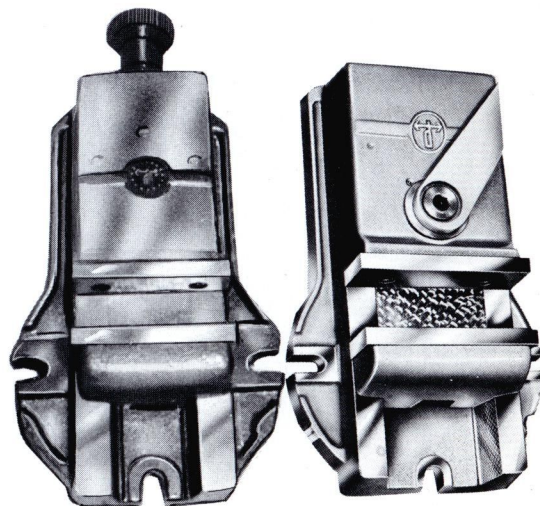
MODEL UW

UNIVISE (Vise and Swivel Base Assembly)	Jaw Width	Jaw Height	Clamping Capacity	Vise Height	Base Length	Base Width
UW-3	4.92"	1.34"	3.93"	2.83"	11.22"	7.87"
UW-2	3.93"	1"	2.75"	2.25"	9.06"	6.50"

Toolmakers Vise Only Model	Jaw Width	Jaw Height	Total Height	Clamping Capacity
WS-2	3.94"	1.50"	3.07"	5.90"
WS-1	3.15"	1.18"	2.55"	3.94"
WS-0	2.55"	.79"	1.77"	2.75"

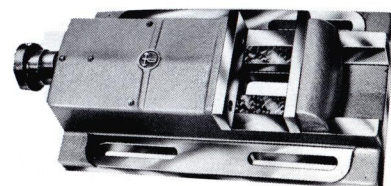
PRECISION MACHINE VISE

- No Lifting of Jaws or Workpiece** — means better clamping and working accuracy.
- No Knockdown of Workpiece Necessary** — means no work distortion.
- Withstands Higher Clamping Pressures** — permits cutting of larger chips.
- Vibration-Free** — saves tools and machine while producing better quality surface finishes.
- Highest Precision Ground Underdraw Jaw** — for long and precise clamping.
- Keys In Undersurface** — permits accurate setups without alignment.
- Extraordinary Wear-Resistance** — provided by cast-steel underdraw guide-ways.
- Clamping Parts and Lead Screw Protected** — from chips and dirt — oil lubrication through nipples forces dirt and chips out.
- No Need for Extra Fixtures** — changeable steel jaw-plates available on special order.
- Extra Low, Rigid Construction** — with coolant groove.



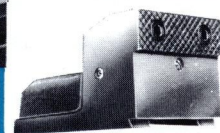
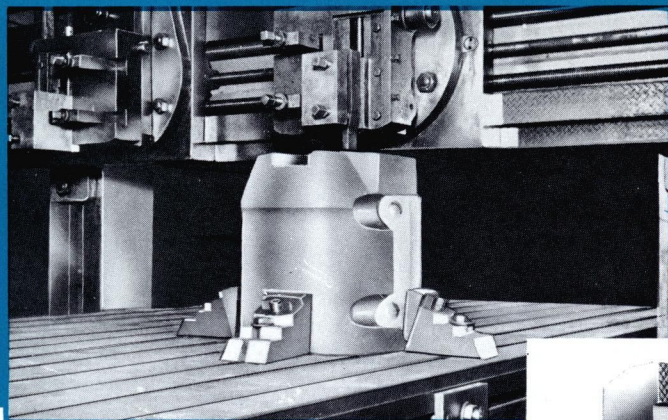
MODEL		JAW WIDTH	HEIGHT OF JAW	JAW OPENING	WEIGHT	
FM	DM				FM	DM
FM 1	DM 1	3½"	1½"	2¾"	17.6 lbs.	28.6 lbs.
FM 2	DM 2	4¾"	1¾"	3½"	32.0 lbs.	48.4 lbs.
FM 3	DM 3	5¾"	1¾"	3½"	50.6 lbs.	74.8 lbs.
FM 4	DM 4	6½"	2"	4½"	94.6 lbs.	125.4 lbs.
FM 5	DM 5	8¼"	2½"	6½"	142.0 lbs.	222.2 lbs.
S 1		3½"	3½"	1½"	17.6 lbs.	
S 3		5¾"	4¾"	1¾"	52.8 lbs.	
BM 1-1a*		3½"	3½"	1½"	15.4 lbs.	
BM 2-2a*		3½"	3½"	1½"	30.8 lbs.	
BM 3-3a*		4¾"	4¾"	1¾"	50.6 lbs.	
BM 4-4a*		6½"	6½"	2"	88.0 lbs.	

*a—Models have sides ground for a 90° reference.



GET A BETTER GRIP ON YOUR WORK

Universal Work

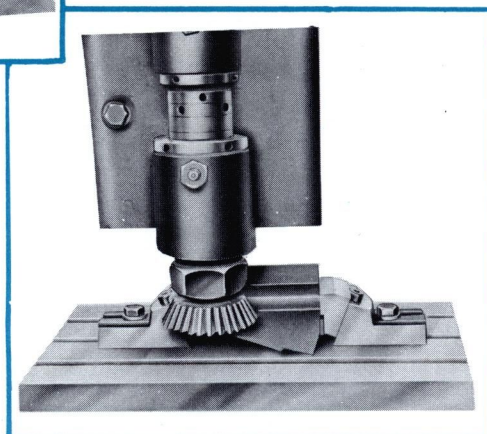
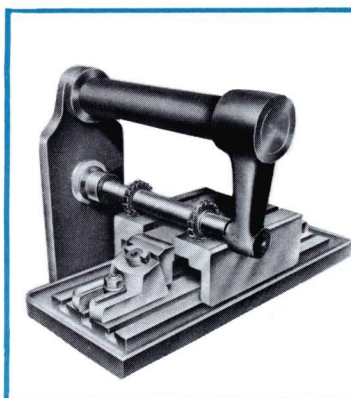
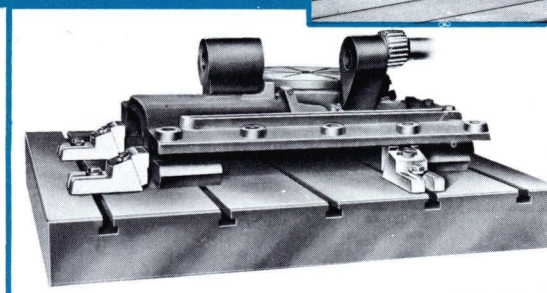


SAME TIME

SAME SPACE

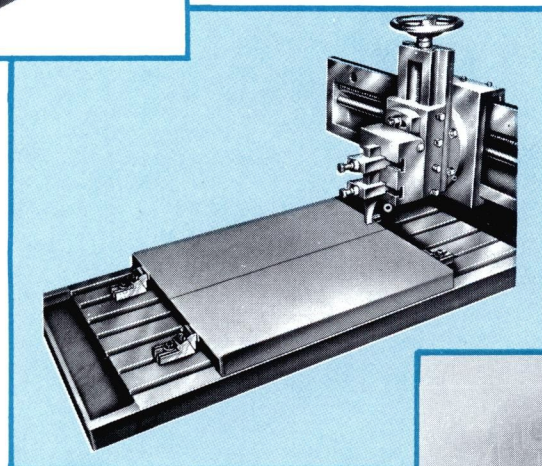
SAME MONEY

- Work is pulled down directly on machine table
- Additional spindle clearance
- Operate vertically and horizontally
- Uncluttered work surface
- Various sizes to meet your requirements
- Easily accessible grease fitting point for lubrication
- New diagonal serration pattern on the jaw plates
- Bodies now constructed of Meehanite type casting



GRIPPING CLAWS:

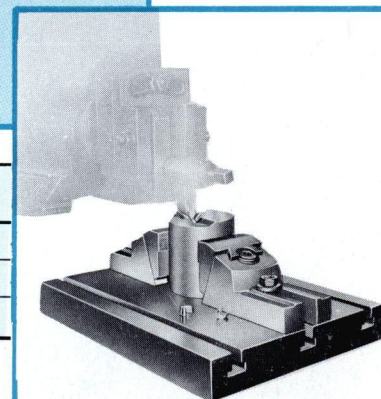
Grip and hold any shape quickly and securely
Pull down without hammering. Angular jaw approach provides tremendous hold down power.
Also converts lathe face plate to a 3 or 4 jaw chuck.



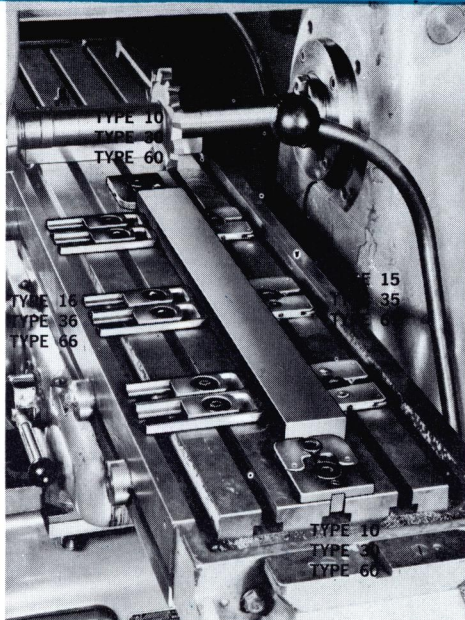
SPECIFICATIONS

SIZE	JAW WIDTH	DEPTH DIMENSIONS	BASE LENGTH	APPROX. WEIGHT PER PAIR
1	2.350"	2.030"	5.050"	5.8 Lbs.
2	3.130"	2.950"	6.970"	15.4 Lbs.
3	4.720"	5.050"	8.650"	62.6 Lbs.

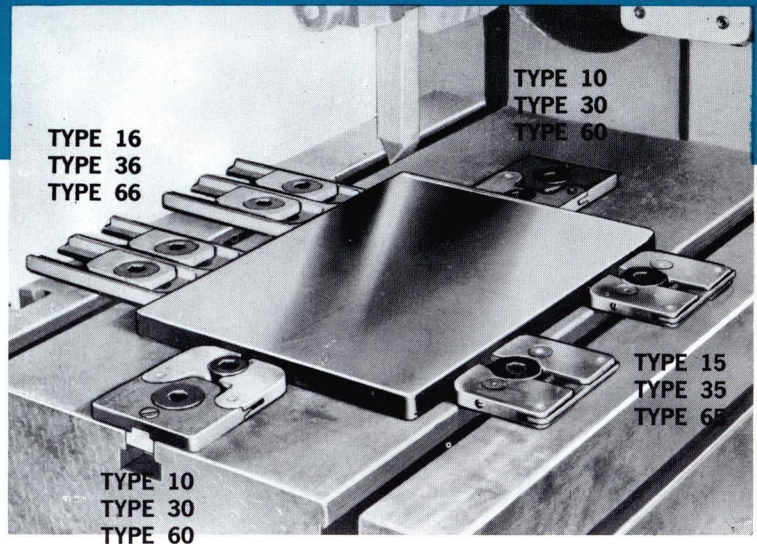
Manufacturer reserves the right to improve construction without notice.



Where "WAY DOWN" Grip is essential, you can't beat **SLIMLINE** Gripping Jaw



SET B, 8 PIECES



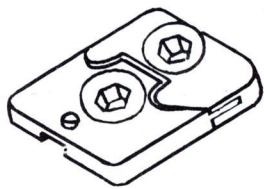
SET A, 6 PIECES

Here's how you can take full advantage of your extra spindle clearance and added table working space when you're operating with low workpieces: Just grip the workpiece with Slimline Gripping Jaws. "Slims" have unusually low clamping silhouette and a powerful grip that holds the piece way down. Converts a lathe faceplate to a chuck.

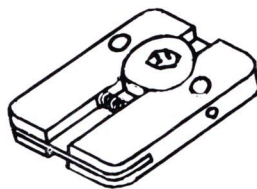
SPECIFICATIONS

Types	10	15	16	30	35	36	60	65	66
Length	3 $\frac{3}{8}$ "	2 $\frac{3}{8}$ "	4 $\frac{3}{4}$ "	5 $\frac{5}{8}$ "	2 $\frac{3}{8}$ "	4 $\frac{3}{4}$ "	5 $\frac{5}{8}$ "	2 $\frac{3}{8}$ "	4 $\frac{3}{4}$ "
Width	2 $\frac{3}{4}$ "	3"	3 $\frac{1}{4}$ "	3 $\frac{3}{8}$ "	3 $\frac{3}{8}$ "	3 $\frac{3}{8}$ "	3 $\frac{3}{8}$ "	3 $\frac{3}{8}$ "	3 $\frac{3}{8}$ "
Height	$\frac{3}{8}$ "	$\frac{3}{8}$ "	$\frac{3}{8}$ "	1 $\frac{1}{8}$ "	1 $\frac{1}{8}$ "	1 $\frac{1}{8}$ "	2 $\frac{3}{8}$ "	2 $\frac{3}{8}$ "	2 $\frac{3}{8}$ "
Weight	1 $\frac{1}{3}$ lb.	1 lb.	1 $\frac{1}{2}$ lb.	3 $\frac{1}{3}$ lb.	2 $\frac{1}{4}$ lb.	2 $\frac{1}{2}$ lb.	6 $\frac{1}{2}$ lb.	4 $\frac{1}{2}$ lb.	3 $\frac{1}{2}$ lb.

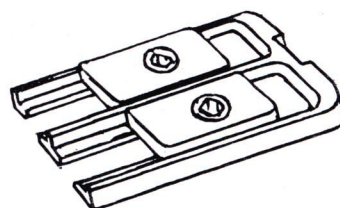
Sets	Total Pieces	SET COMPOSITION
Set A	6	2 pcs. each #10, #15, #16
B	8	2 pcs. #10, 3 pcs. ea. #15, #16
C	6	2 pcs. each #30, #35, #36
D	8	2 pcs. #30, 3 pcs. ea. #35, #36
E	6	2 pcs. each #60, #65, #66
F	8	2 pcs. #60, 3 pcs. ea. #65, #66



Type 10
Type 30
Type 60

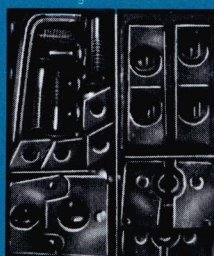


Type 15
Type 35
Type 65

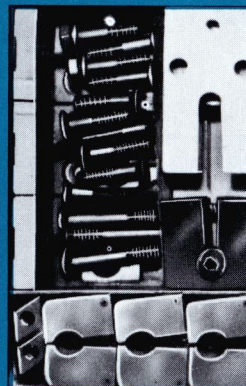


Type 16
Type 36
Type 66

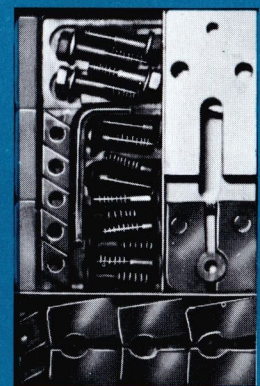
Sets now available
with
Metal Case
at no extra charge



Set A & B



Set C & D

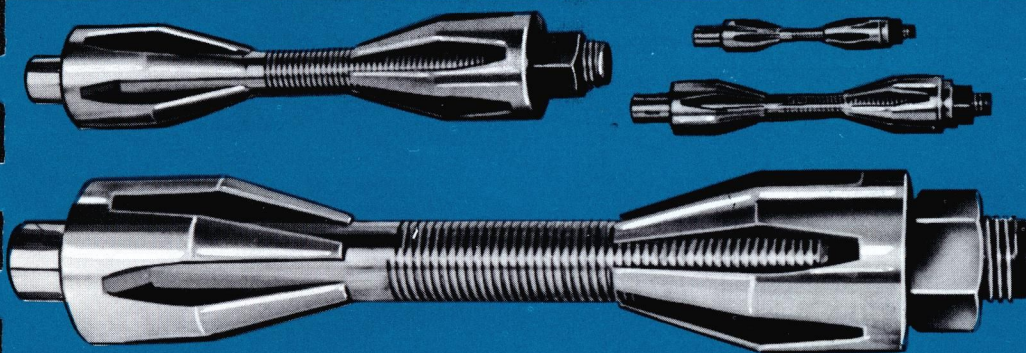


Set E & F

Use **UNI-ARBOR**

UNIVERSAL WIDE RANGE SPLINED INTERLOCKING ARBOR and WORK DRIVER

A Time Saver for Every Shop – To be used on Lathes, Grinders, Milling Machines, Saw and Cutter Sharpening Machines



- Securely holds workpieces and parts with straight, stepped, tapered square hex and irregularly shaped bores.
- Set of 3 Universal Arbors have an overlapping bore range from 5/16" to 1-9/16" diameter.
- For the heavier industries the larger #3 and giant #4 are available with a holding capacity from 1 1/2" to 4-15/16" diameter.
- A Disc Driver for securely holding thin, large diameter work pieces is available for each size. With this accessory, the versatility of the Uni-Arbor is expanded still further.
- This all around versatile shop tool is unexcelled for short or long runs of machining bushings, tubes, discs, gears and drums with an accuracy of .001" to .0015" T.I.R.

SPECIFICATIONS

SIZE	BORE DIAMETER CAPACITY	OVERALL LENGTH	WEIGHT OF ARBOR	WEIGHT OF DISC DRIVER
0	5/16" to 3/8"	5 1/2"	7 oz.	3/4 oz.
1	1/2" to 7/8"	6 3/32"	11 oz.	2 oz.
2	25/32" to 1 1/8"	9 27/32"	2 lbs. 3 oz.	10 3/4 oz.
3	1 1/2" to 3"	17 7/8"	15 lbs. 7 oz.	3 lbs. 1 1/2 oz.
4	2 11/16" to 4 15/16"	29 17/32"	72 lbs. 12 oz.	9 lbs. 15 oz.

Small set of 3 includes sizes #0, 1 & 2 with disc drivers,

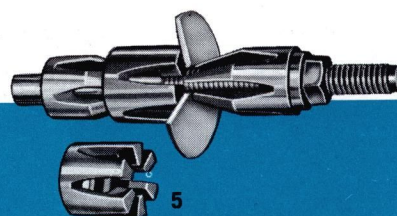
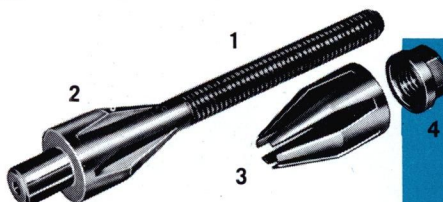
Large set of 5 includes sizes #0, 1, 2, 3 & 4 with disc drivers,

NOTE: Maximum length of workpiece which can be held with each arbor is 3 times the diameter to be clamped.

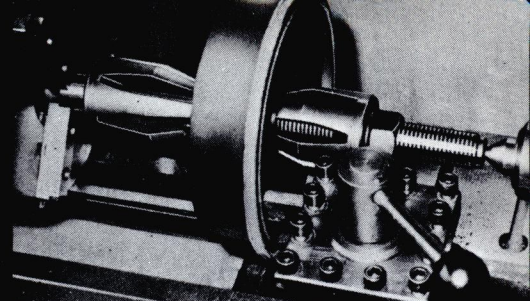
Larger arbors can be supplied on special order.



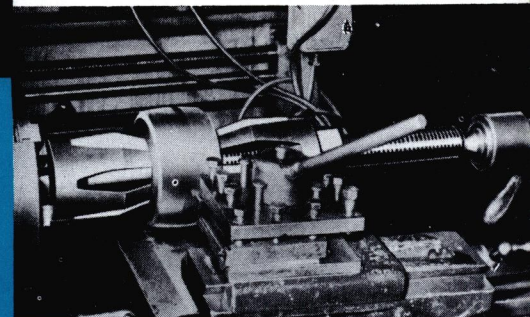
UNI-ARBOR MODEL 0



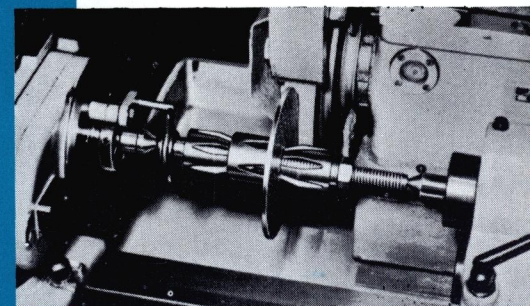
1. & 2. Main Arbor with Fixed Tapered Spline
3. Adjustable Spline
4. Lock Nut
5. Disc Driver



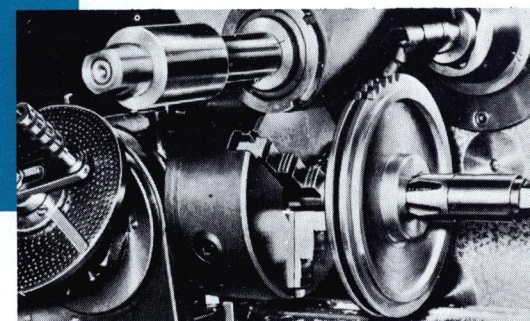
Turning a brake drum using the UNI-ARBOR #3.



Spherical turning of a Pressure Roller using the UNI-ARBOR #4.



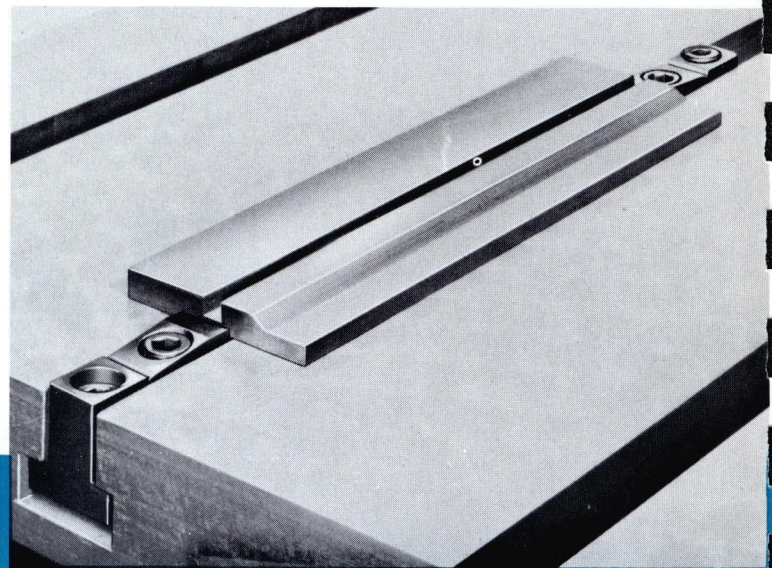
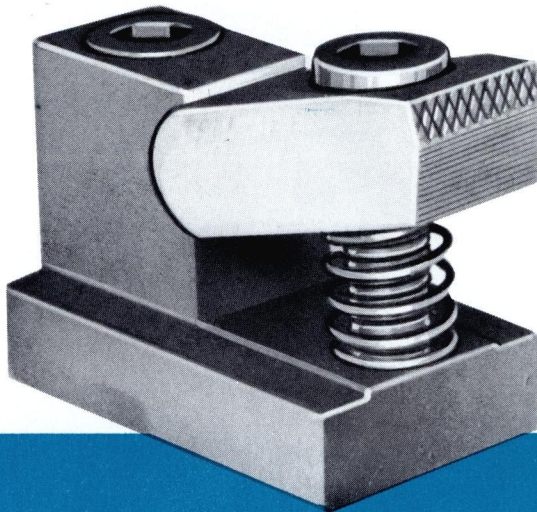
Cylindrical grinding of a thin flange using the UNI-ARBOR #2 with Disc Driver.



Milling of Chain Sprocket using the UNI-ARBOR #2.

MINI-MIGHT-TEE T-SLOT GRIPPING JAWS

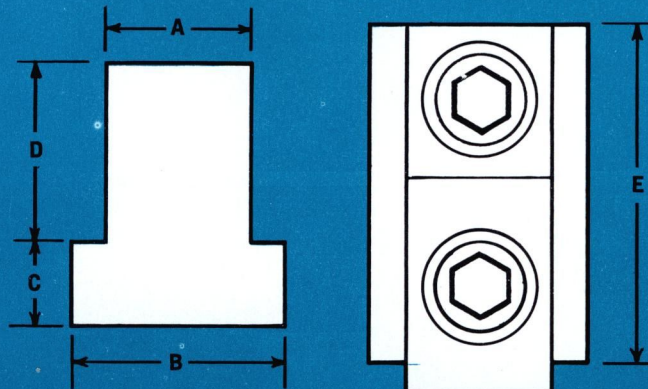
THEY'RE LITTLE, BUT MIGHT-TEE POWERFUL



Tiny but tough — that's what you'll say about Mini-Might-Tee Gripping Jaws — newest member of the family that includes GRIPPING CLAWS and SLIMLINE Gripping Jaws!

Mini-Might-Tee's fit into the T-Slot and just barely appear above the surface. Yet they grip like a Hercules to hold down a workpiece as thin as a dime. Perfect for jobs where you need extra clearance under the spindle and for your entire table working space. On Rotary Tables and face plates, they easily replace an expensive 3 or 4 jaw chuck. Work is always pulled down on the table. Available in pairs.

SPECIFICATIONS



Size M.M.	A Inch	B	C	D	E
10	$\frac{3}{8}$ "	$\frac{23}{32}$	$\frac{5}{16}$	$\frac{3}{8}$	$1\frac{1}{2}$
12	$\frac{1}{2}$ "	$\frac{25}{32}$	$\frac{5}{16}$	$\frac{5}{8}$	$1\frac{1}{2}$
14	$\frac{5}{8}$ "	$\frac{29}{32}$	$\frac{11}{32}$	$\frac{23}{32}$	$1\frac{1}{16}$
16	$1\frac{1}{16}$ "	$1\frac{1}{16}$	$\frac{13}{32}$	$\frac{13}{16}$	$1\frac{25}{32}$
18	$\frac{3}{4}$ "	$1\frac{1}{8}$	$\frac{7}{16}$	$\frac{15}{16}$	$1\frac{25}{32}$
20	$\frac{7}{8}$ "	$1\frac{1}{4}$	$\frac{1}{2}$	$1\frac{1}{32}$	$1\frac{31}{32}$

What's

Your

ANGLE?

OURS IS THE
NEW, EXCLUSIVE

EASY-ANGLE[®]
WISE-JAW

Actual Size: Model E-Z6

PATENT PENDING

AT LAST — THE ANGLE
YOU NEED... WHEN YOU
NEED IT!

0° to 90°
ANGLES

With the amazingly new, and simple, EASY-ANGLE mounted in your vise, you can have any angle . . . from 0° to 90° . . . accurate to 1/4° . . . in a matter of seconds. Here's how EASY-ANGLE does it:

1. You check the easy-to-read chart for the angle you want.*
2. You place the two correctly specified pins in the holes indicated by the chart.
3. You rest your work on the pins and close the vise.

YOU'RE NOW READY TO WORK

for:

- MILLING
- GRINDING
- LAYOUT
- DRILLING
- SHAPING
- INSPECTION

FAST & ACCURATE!

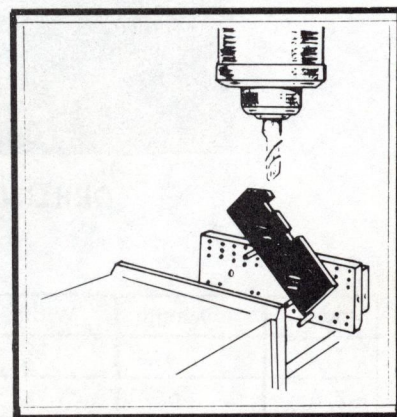
The EASY-ANGLE

Jaw insert is tough, accurately-ground steel plate with specially hardened worksurface. Provisions to allow for mounting on vises and checking fixtures.

You can feel confident and at ease with your EASY-ANGLE . . . the newest tool from NEISE MODERNTOLS—and that means you get superior quality and true dependability.

EASY-ANGLE comes in three sizes: 4" — 6" — 8". (Turn to reverse side and see the EASY-ANGLE in action, and get the exact specifications).

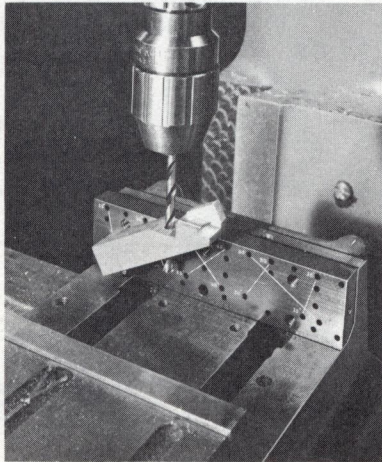
*Chart included in package.



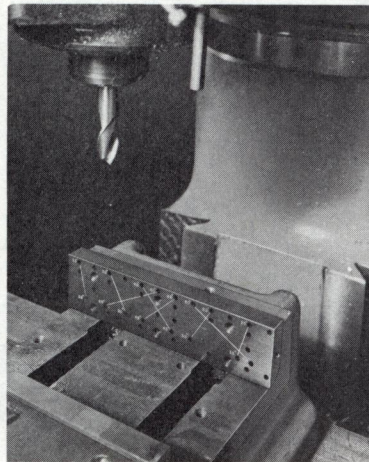
JUST LOOK AT SOME OF THE MANY OPERATIONS YOU CAN PERFORM

WITH

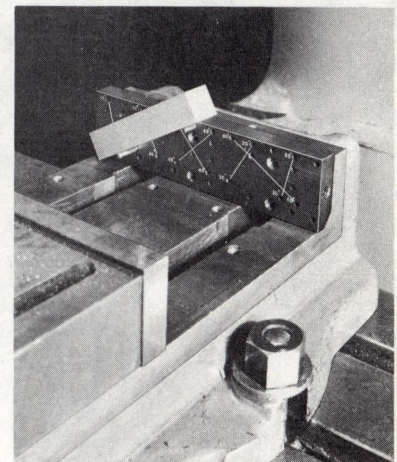
EASY-ANGLE[®] vise-jaw



DRILLING



MILLING



GRINDING

and numerous other operations!

Model	Length	Width	Depth	Price
E-Z 4	4"	1/2"	1 1/2"	\$40.00
E-Z 6	6"	1/2"	2"	\$42.00
E-Z 8	8"	1/2"	2 1/2"	\$45.00

THE ONLY ONE OF ITS KIND A REAL TIME-SAVER!

Two Pegs . . . One Chart . . . the Easy-Angle
. . . and you're ready!

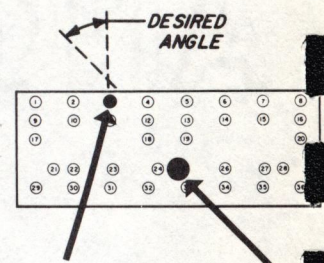
Standard equipment
consists of one
EASY-ANGLE, six pins,
and a guide chart.

**EASY
does it
with the
EASY-
ANGLE!**

DESIRED ANGLE	PT. 1 PIN	IN. DRILL	PT. 2 PIN	IN. DRILL
1	1	1	1	1
2	2	2	2	2
3	3	3	3	3
4	4	4	4	4
5	5	5	5	5
6	6	6	6	6
7	7	7	7	7
8	8	8	8	8
9	9	9	9	9
10	10	10	10	10
11	11	11	11	11
12	12	12	12	12
13	13	13	13	13
14	14	14	14	14
15	15	15	15	15
16	16	16	16	16
17	17	17	17	17
18	18	18	18	18
19	19	19	19	19
20	20	20	20	20
21	21	21	21	21
22	22	22	22	22
23	23	23	23	23
24	24	24	24	24
25	25	25	25	25
26	26	26	26	26
27	27	27	27	27
28	28	28	28	28
29	29	29	29	29
30	30	30	30	30

DESIRED ANGLE	PT. 1 PIN	IN. DRILL	PT. 2 PIN	IN. DRILL
31	31	31	31	31
32	32	32	32	32
33	33	33	33	33
34	34	34	34	34
35	35	35	35	35
36	36	36	36	36
37	37	37	37	37
38	38	38	38	38
39	39	39	39	39
40	40	40	40	40
41	41	41	41	41
42	42	42	42	42
43	43	43	43	43
44	44	44	44	44
45	45	45	45	45
46	46	46	46	46
47	47	47	47	47
48	48	48	48	48
49	49	49	49	49
50	50	50	50	50

**ANGLE SELECTOR
CHART**



JUST CHECK THE CHART . . . AND PEG THE HOLES
THAT'S ALL!

Prices F.O.B. Woodside, N.Y.
Effective April 1, 1966.
Subject to change without notice.

EXCLUSIVE REPRESENTATIVES:

**NEISE
MODERNTOLS**

KARL A. NEISE, INC.

Tel. (212) 446-7799

56-02 ROOSEVELT AVENUE • WOODSIDE, N.Y. 11377

Printed in U.S.A.

**NEISE
MODERN TOOLS**

CHIP-FREE DRILLING FIXTURE

for cylindrical parts

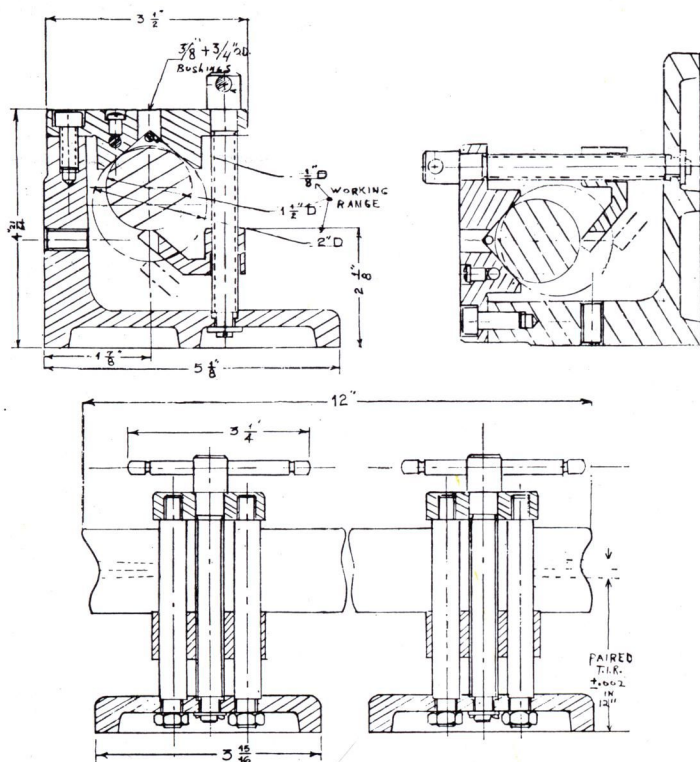
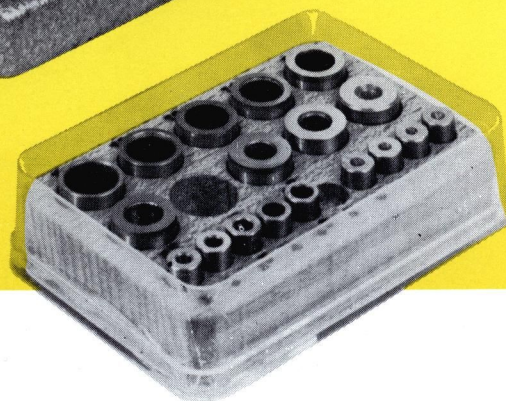
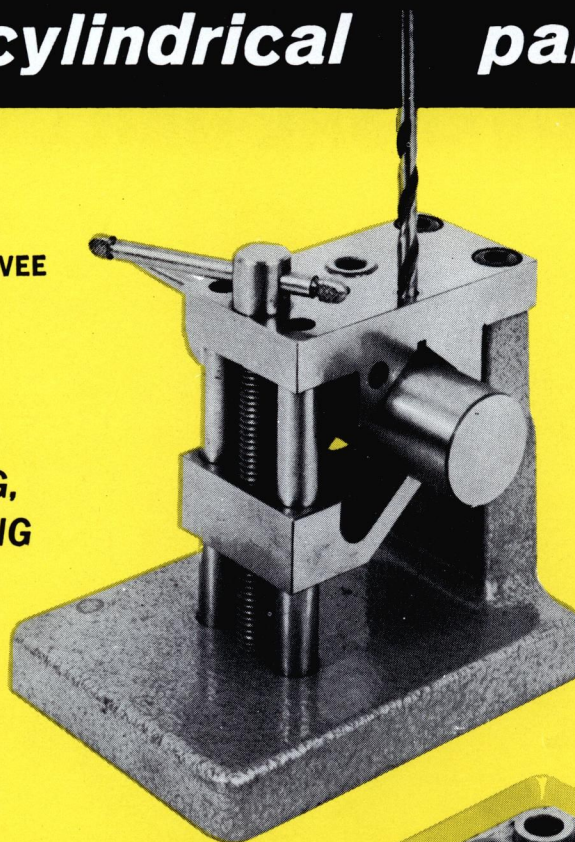
- **RAPID CLAMPING**
- **SELF-CENTERING**
- **POSITIVE, FIXED POSITIONING —**
DRILL IS ALWAYS IN THE CENTER OF THE VEE
- **LENGTH STOP INCLUDED**
- **ALWAYS CHIP-FREE**
- **INVERTED VEE-BLOCK ASSURES PRECISE,**
REPETITIVE MACHINING

**IDEAL FOR PRECISION DRILLING,
MILLING, SHAPING and SLOTTING**

UNIVERSAL APPLICATIONS

Use for vertical and horizontal drilling, end drilling and milling; also angled drilling and milling.

- Vee Block hardened and ground. Rigidly supported on both sides for greater precision.
- Adjustable clamping arm hardened and ground, relieved for through drilling.
- Rigid Semi Steel Base.
- Special paired in height models parallel within $\pm.002$ " with a 12" test bar.



CAPACITY

Clamping capacity $\frac{1}{8}$ " to 2" dia.
Drill capacity to $\frac{9}{16}$ "

WEIGHT

6 $\frac{3}{4}$ lbs.

OPTIONAL SET OF BUSHINGS

- Small Range:** Outside $\frac{3}{8}$ "
for drills: $\frac{1}{8}$ ", $\frac{3}{16}$ ", $\frac{1}{4}$ ", $\frac{5}{16}$ ", $\frac{3}{8}$ " and
3 spare soft blanks for your own sizing.
- Large Range:** Outside $\frac{1}{4}$ "
for drills: $\frac{1}{4}$ ", $\frac{5}{16}$ ", $\frac{3}{8}$ ", $\frac{7}{16}$ ", $\frac{1}{2}$ ", $\frac{9}{16}$ ",
and 2 spare soft blank for your own
sizing.

VERSATILE, WIDE RANGE DRILLING FIXTURE WITH 1001 USES IN EVERY SHOP

KARL A. NEISE, INC. 56-02 ROOSEVELT AVENUE • WOODSIDE, NEW YORK 11377

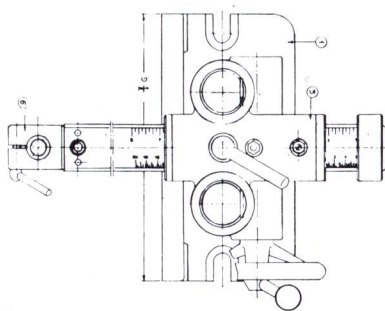
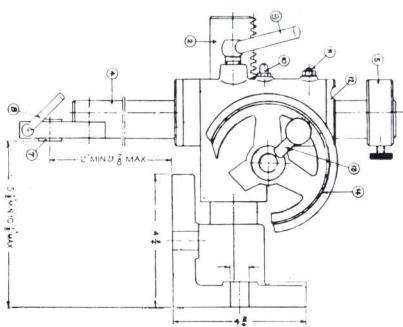
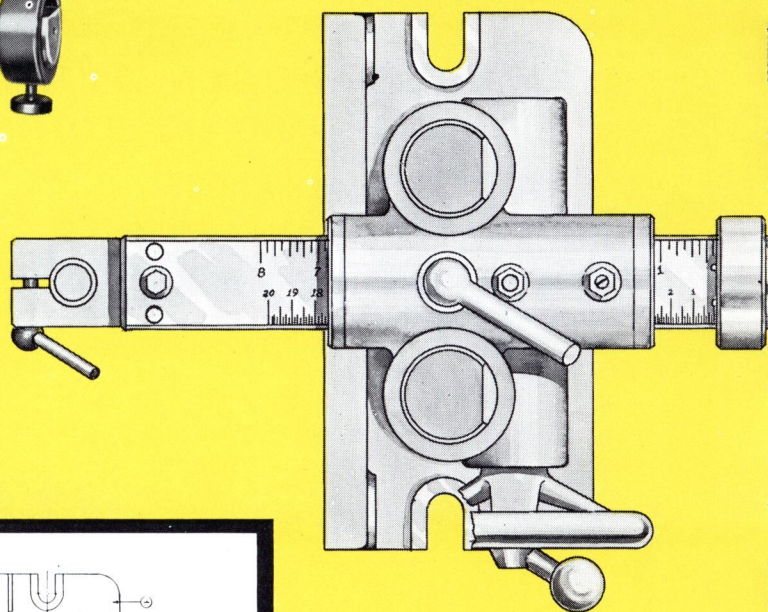
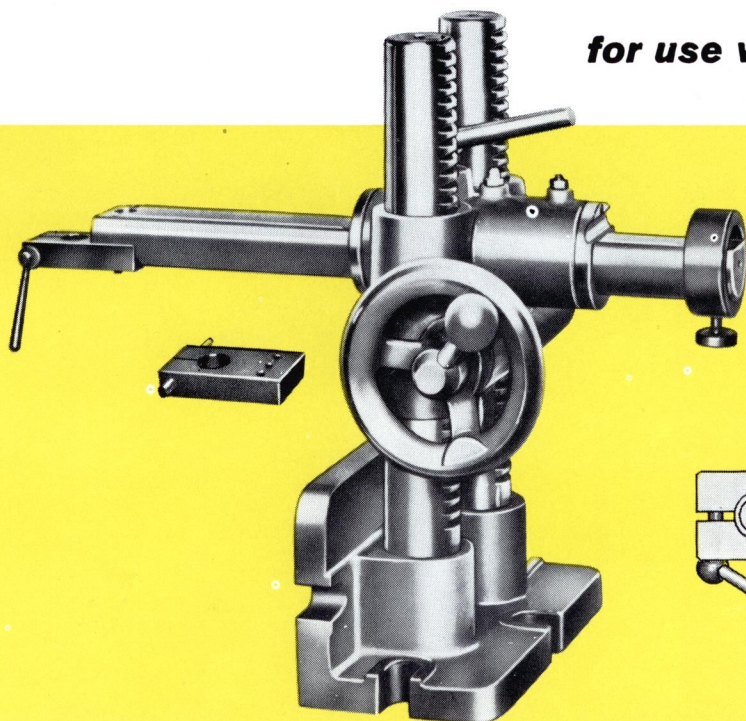
All prices and designs subject to change without notice. Prices F.O.B. Woodside, New York.

**NEISE
MODERNTOOLS**

New, Heavy Duty

UNIVERSAL DRILL FIXTURE Model DFRT

for use with Rotary Tables & Indexing Tables



DESIGNATION OF INDIVIDUAL PARTS

- | | |
|--------------------|--|
| 1. Base | 8. Bushing clamp lever |
| 2. Gear rack | 9. Locking lever |
| 3. Spindle housing | 10. Oil nipple |
| 4. Spindle | 11. Locking screw |
| 5. Adjustable stop | 12. Index collar |
| 6. Clamp bushing | 13. Clamp locking lever for hand wheel |
| 7. Bushing | 14. Hand wheel |

Clamp it directly to your machine table and extend the versatility of your machine and accessories.

Weight: 57 lbs.

KARL A. NEISE, INC. 56-02 ROOSEVELT AVENUE • WOODSIDE, NEW YORK 11377

All prices and designs subject to change without notice. Prices F.O.B. Woodside, New York.

THE MASTER MULTI-TOOL HOLDER «BÖNI» (QUICK CHANGE)

SWISS
«BÖNI»
PRECISION

Guaranteed

. 0 0 0 1 "

REPEATABILITY IS UNCONDI-
TIONALLY GUARANTEED ON
ALL BÖNI TOOLS FOR THE
LIFE OF THE TOOL BY

NEISE
MODERN TOOLS

THE BÖNI PRECISION PRISM
CLAMPING SYSTEM ACTUALLY
IMPROVES WITH USE.

Rigid, Strong and Simple Construction
once set: Always accurate

Available in 5 Sizes for
Center-Height from 4"-18" and over

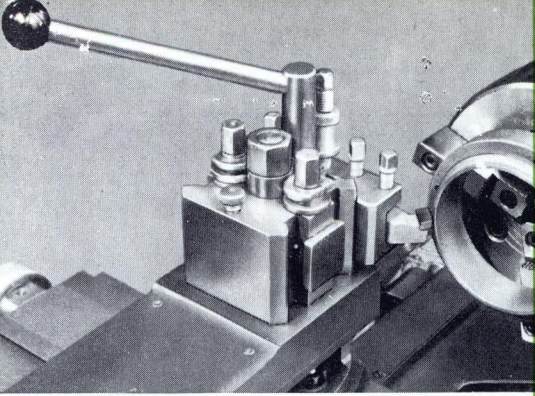
Guaranteed Set Precision .0001"
Tested by
Governmental Testing Laboratory

Distributed by

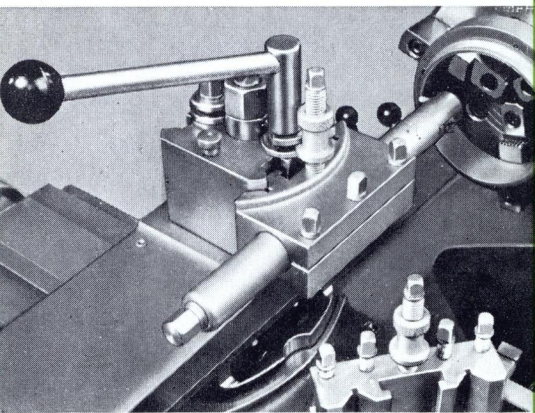
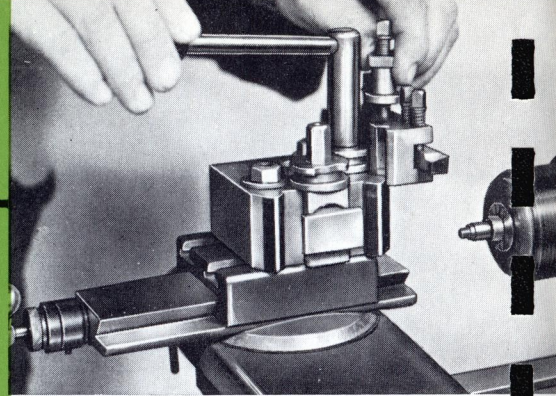
KARL A. NEISE, INC.

56-02 ROOSEVELT AVENUE • WOODSIDE, N.Y. 11377 Tel. (212) 446-7799

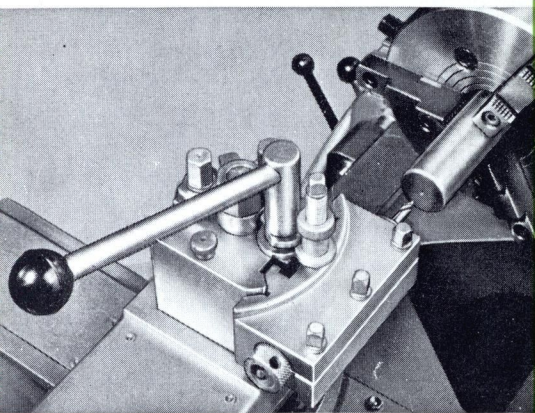
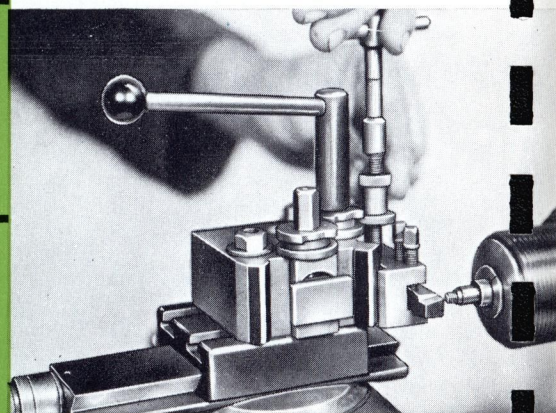
© Copyright by Karl A. Neise, Inc., Woodside, N. Y.



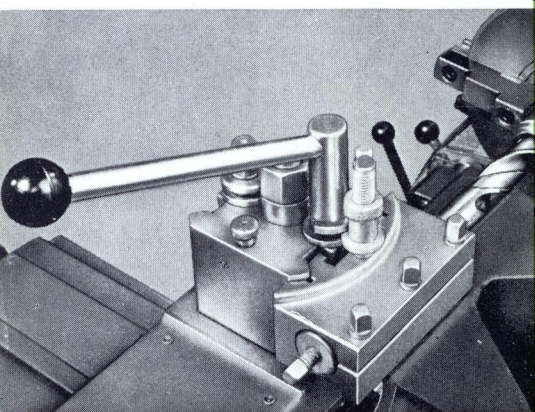
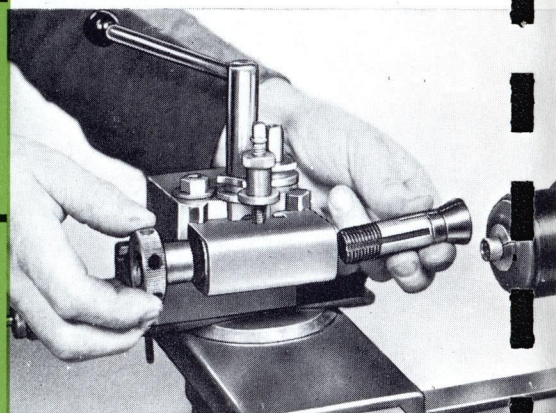
The Precision Swiss Boeni Quick Change Tool Holder using standard high speed and carbide cutting tools. The user is assured of the highest accuracy even under heavy chip loads.



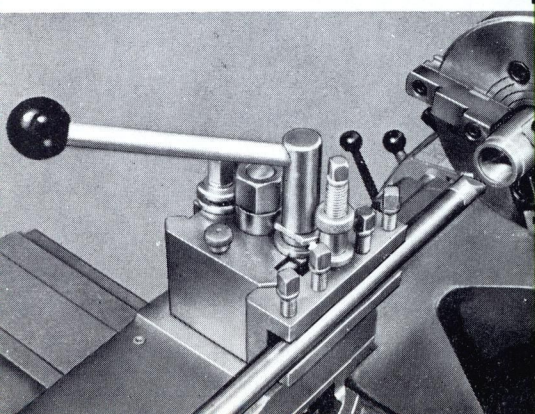
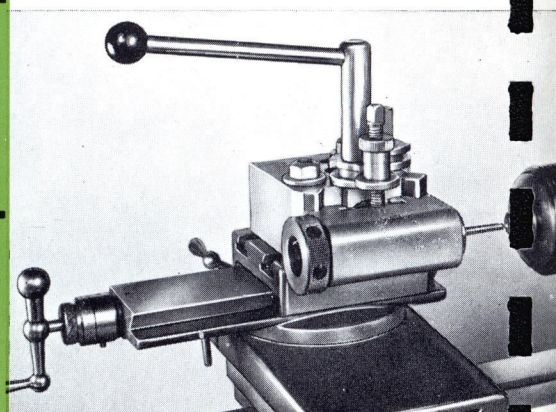
The patented Boeni Boring Bar and Holder provides exceptional rigidity and adjustability. It accepts standard H. S. and carbide tool bits.



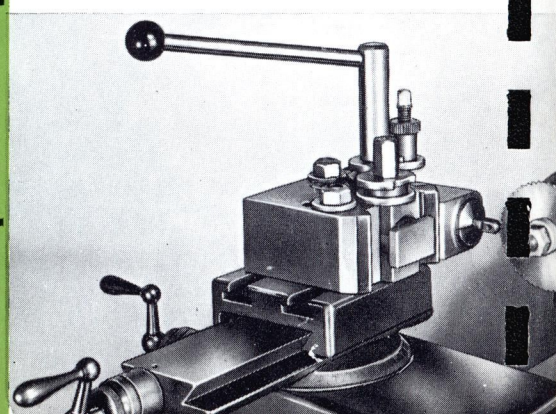
A collet clamping sleeve to fit the boring bar holder when using center drills, reamers, taps and round shanked boring tools.



An adaptor for taper shanked drills, chucks and reamers to extend the working range and versatility of the boring bar holder.



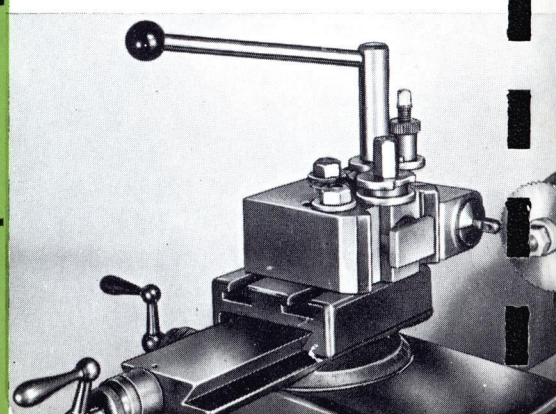
A typical precision small boring operation using collets to hold round shanked tools without distortion and shank scoring set screws.



A quick change tool holder with additional Vee Groove to hold round and square cutting tools.



Performing a slotting operation using the collets to hold the work-piece.



BÖNI MASTER MULTI-TOOL HOLDER

increase the efficiency of any Lathe **considerably**.

PRODUCTION WORK

Small or large production runs usually require the performance of several operations in one set-up. However, even with a square, conventional tool post turret, only 3, but not more than 4, cutting tools can be held, whereby not a single one can be longer than the side length of the turret. The accuracy after an executed turn often leaves much to be desired and depends upon the condition of the locking device and the ability of the operator.

With a **Böni Master Multi-Tool Holder** one can execute as many operations in **one set-up** as one owns Exchange Holders. The sequence of the tools can be selected and changed as desired without extra work.

The clamping accuracy is guaranteed ".0001" and cannot be influenced after the tool has once been set to proper height and is locked.

SET-UP TIME

This is reduced enormously with **Böni Master Multi-Tool Holder**. The cutting tools do not have to be shimmed up with sheet metal, etc. The bit is placed directly on the clean surface and clamped to it. The height of the cutting point can then be adjusted easily and clamped tightly. **By this method the set-up time of the tool can be shortened up to 90%.**

Work in large and small series with the most economical number of tools can be executed according to gage. No tool hampers the other, be it long or short, and thus accident possibilities are decreased. When changing the engagement of a tool it is not necessary to move the cross slide so that the turret can be turned, and thus the change is made as fast as turning a square toolholder.

REGRINDING OF TOOLS

It is generally necessary for the lathe operator to regrind one tool each $\frac{1}{2}$ hour.

As it is usually done: Unclamp tool—regrind—adjust the supporting shims again—readjust tools and perhaps stops.

AS DONE WITH BÖNI MASTER MULTI-TOOL HOLDER

Regrind the bit in the holder—readjust height of cutting point—continue to work. **Again, considerable time saving.**

SINGLE PIECE PRODUCTION

The time saving here can be even greater. The most frequently used toolbits always in their respective Exchange Holders can be made ready for cutting in the lathe within 5 seconds. Up to now the clamping and setting of the tool bit often has cost more time than the actual operation.

Böni Master Multi-Tool Holder offers you advantages only and is sold at a most economical price. All parts are carefully machined and hardened.

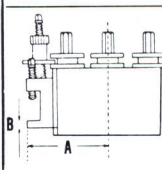
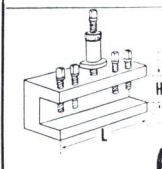
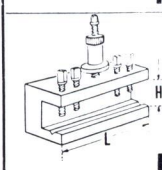
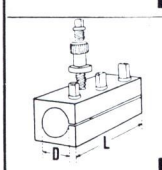
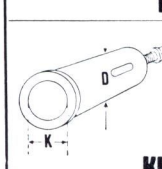
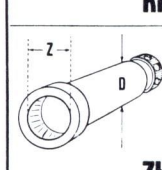
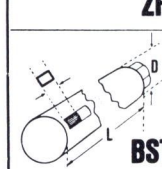
Böni Master Multi-Tool Holder is a Swiss product and used in Swiss precision work. Replacement parts or additional exchange holders are available from our warehouse.

NO MORE WORRIES ABOUT ACCURACIES

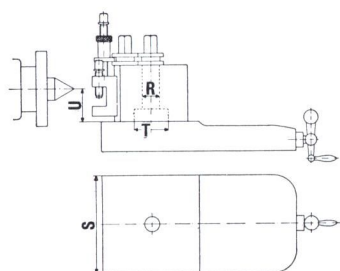
1 — We unconditionally guarantee .0001" repeatability for the life of your Böni.

2 — Swiss Federal Testing Laboratory found the actual Böni accuracy to be .00004" - .00008".

DIMENSIONS OF «BÖNI» MODELS

		Type 80 for Machines up to 2 H. P. Center Height to 6"	Type 100 for Machines up to 6 H. P. Center Height to 8"	Type 125 for Machines up to 12 H. P. Center Height to 10"	Type 150 for Machines up to 20 H. P. Center Height to 18"	Type 200 for Machines up to 35 H. P. Center Height over 18"
	A	2.480"	3.190"	4.095"	4.528"	5.945"
	B	.315"	.512"	.670"	.787"	.886"
	C	1.772"	2.953"	3.543"	3.937"	5.118"
	H	.630"	1.024"	1.418"	1.575"	1.970"
	L	3.150" 4.330"	3.819" 5.118"	4.922" 6.300"	5.787" 7.874"	7.874" 9.842"
	Cat. No.	80 A-n. 80 A-Ig.	100 A-n. 100 A-Ig.	125 A-n. 125 A-Ig.	150 A-n. 150 A-Ig.	200 A-n. 200 A-Ig.
	H	.630"	1.024"	1.418"	1.575"	1.970"
	L	3.150" 4.330"	3.819" 5.118"	4.922" 6.300"	5.787" 7.874"	7.874" 9.842"
	Cat. No.	80 B-n. 80 B-Ig.	100 B-n. 100 B-Ig.	125 B-n. 125 B-Ig.	150 B-n. 150 B-Ig.	200 A-n. 200 A-Ig.
	D	For Collets C 3	1.181" or 1.575"	1.575"	1.575"	1.968"
	L	3.150" 4.330"	3.819" 5.118"	4.922" 6.300"	5.787" 7.874"	7.874" 9.842"
	Cat. No.	80 Z-n. 80 Z-Ig.	100 K-n. 100 K-Ig.	125 K-n. 125 K-Ig.	150 K-n. 150 K-Ig.	200 K-n. 200 K-Ig.
	D	Exchange Holder with Morse Taper 3	1.181" or 1.575"	1.575"	1.575"	1.968"
	K	Morse Taper 3	Morse Taper 3 or 4	Morse Taper 4	Morse Taper 4	Morse Taper 4
	Cat. No.	KH 80	KH 30/KH 40	KH 40	KH 40 KH 40 Ig	KH 50 KH 50
	D	Collet-Insert for Type 80 see Fig. 3-4-5	1.181" or 1.575"	1.575"	1.575"	1.968"
	Z		for Collets C 5	for Collets C 5	for Collets C 5	for Collets C 5
	Cat. No.		100 ZH 100 ZH	125 ZH 125 ZH	150 ZH-n. 150 ZH-Ig.	200 ZH 200 ZH
	D		1.181"	1.575"	1.575"	1.968"
	L		11.811"	14.570"	14.570"	23.622"
			3/8"	1/2"	1/2"	1/2"
	Cat. No.		BST 30	BST 40	BST 40	BST 50

Breadth of Support = S



	Type 80	Type 100	Type 125	Type 150	Type 200	
11"				U = min. 2"		11"
10"	U = min. 3/4"	U = min. 1 5/16"	U = min. 1 5/8"	for Tools up to 1 3/16" Height	200 AB K — Ig.	10"
9"	for Tools up to 7/16" Height	for Tools up to 3/4" Height	for Tools up to 1" Height	U = max. 2 1/2"		9"
8"	U = max. 1 1/8"	U = max. 1 5/8"	U = max. 2 3/16"	150 AB K — Ig.	200 AB K — n.	8"
7"	R = .630"	R = .867"			U = min. 2 1/2"	7"
6"	+ .016" - .001" Ø	+ .016" - .008" Ø	125 AB K — Ig.	150 AB K — n.	for Tools up to 1 9/16" Height	6"
5"		100 AB K — Ig.	125 AB K — n.		U = max. 3"	5"
4"	80 AB Z — Ig.	100 AB K — n.				4"
3"	80 AB Z — n.		R = .985"	R = 1.260"	R = 1.575"	3"
2"			+ .016" - .008" Ø	+ .016" - .008" Ø	+ .016" - .008" Ø	2"
1"		T = 1.771" + .001" - .000" Ø	T = 2.362" + .001" - .000" Ø	T = 2.559" + .001" - .000" Ø	T = 2.952" + .001" - .000" Ø	1"
		Ø x .670" Height	Ø x .945" Height	Ø x 1.417" Height	Ø x 1" Height	

For Machines up to 2 H. P.

6 H. P.

12 H. P.

20 H. P.

35 H. P.

KAN SKIN CLEANSER

An exclusive **KAN** formula . . .

KAN Skin Cleanser quickly restores natural beauty and comfort of deep-clean healthy skin. Removes stubborn stains and kills odors. Leaves hands soft and handsome. Leaves a minimum of grime in wash basins.

Time-Tested—Quality-Proven . . .

This exclusive KAN formula has had amazing success in special fields of hardest service. Compounded scientifically . . . using eleven time-tested ingredients, including deodorizer, beneficial oils, water softener . . . all supported by selected grades of the world's finest pumice. No useless "bulker" or injurious make-weight. Half as much goes over twice as far! Used and proven world-wide.

A Variety of sizes for a Variety of Uses.



12 OZ. CAN (6 Cans in a Carton)	1 Carton	\$ 11.10 ea	2 LB. CAN	1 Can	\$ 3.20 ea
	2 Cartons	10.50 ea		2 "	2.75 ea
	3 "	9.95 ea			
	4 "	9.45 ea			
	5 "	8.85 ea			
5 LB. CAN	1 Can	6.05 ea	DRUMS	25 Lb. Drum	24.20 ea
	2 "	5.90 ea		50 " "	42.90 ea
	3 "	5.75 ea		100 " "	81.70 ea
	4 "	5.60 ea		250 " "	194.55 ea
DISPENSER	1	2	3	4	5 or more
	\$26.95	\$25.60	\$24.30	\$23.10	\$21.95



DISPENSER This all-metal easily refillable dispenser is a handsome and useful addition to any washroom. Holds 1½ lbs. KAN Skin Cleanser. Each move of the lever automatically measures out just the right amount of KAN Skin Cleanser for washing hands. Stops waste—cuts cost per hand wash. Complete with wall bracket and screws, ready to install.

MINIMUM ORDER — \$10.00 ORDER MAY BE COMBINED WITH ANY OF OUR OTHER PRODUCTS.

KARL A. NEISE, INC. 56-02 ROOSEVELT AVENUE • WOODSIDE, NEW YORK 11377

ALL PRICES AND DESIGNS SUBJECT TO CHANGE WITHOUT NOTICE. PRICES F.O.B. WOODSIDE, NEW YORK.

JANUARY 1975

KARL A. NEISE, INC.

56-02 ROOSEVELT AVENUE • WOODSIDE, NEW YORK 11377

PLEASE SEND THE FOLLOWING:

KAN SKIN CLEANSER

*An exclusive **KAN** formula . . .*

	CHECK ORDER BOX
12 OZ. CAN (6 cans in a carton)	
1 CARTON\$11.10 ea	☐
2 CARTONS 10.50 ea	☐
3 CARTONS 9.95 ea	☐
4 CARTONS 9.45 ea	☐
5 CARTONS 8.85 ea	☐

	CHECK ORDER BOX
2 LB. CAN	
1 CAN\$ 3.20 ea	☐
2 CANS 2.75 ea	☐

	CHECK ORDER BOX
DRUMS	
25 LB. DRUM\$24.20 ea	☐
50 LB. DRUM 42.90 ea	☐
100 LB. DRUM 81.70 ea	☐
250 LB. DRUM 194.55 ea	☐

	CHECK ORDER BOX
5 LB. CAN	
1 CAN\$ 6.05 ea	☐
2 CANS 5.90 ea	☐
3 CANS 5.75 ea	☐
4 CANS 5.60 ea	☐

	CHECK ORDER BOX
DISPENSERS	
1 DISPENSER\$26.95 ea	☐
2 DISPENSERS 25.60 ea	☐
3 DISPENSERS 24.30 ea	☐
4 DISPENSERS 23.10 ea	☐
5 DISPENSERS 21.95 ea	☐

MINIMUM ORDER — \$10.00 — ORDER MAY BE COMBINED WITH ANY OF OUR OTHER PRODUCTS

NAME _____ TITLE _____

COMPANY _____

ADDRESS _____

CITY _____ STATE _____

(Area Code: 212) 446-7799

Cable Address: KARLNEISE

Telex: 62173

KARL A. NEISE, INC. 56-02 ROOSEVELT AVENUE • WOODSIDE, NEW YORK 11377

Dear Sir:

You may have often wondered how the auto repairman removes the final grime from his hands besides wiping it on your car's upholstery.

A special formula made and used for years solves this difficult hand cleaning problem. It is being offered by KARL A. NEISE, INC. exclusively to the metalworking industry and jobbing shops for the first time. Its name is

KAN SKIN CLEANSER

It is a thorough hand cleaner for the OSHA oriented shop. It leaves skin soft and pliable and can even be used on the face. The application is slightly fragrant so that odors of rancid and burned coolant and cutting oil are removed.

KAN SKIN CLEANSER has no useless bulkers and goes three times as far as less effective abrasive cleansers. Sink traps are not loaded up with residue. Minimum grime left in the sink basin.

Seven sizes to suit the needs of your shop.

Please ask for a free sample!

KARL A. NEISE, INC.

MASTERTOOLS FOR MODERNIZED MACHINING

**NEISE
MODERNTOOLS**



Very truly yours,

The undersigned, being duly qualified, do hereby certify that the foregoing is a true and correct copy of the minutes of the meeting of the Board of Directors of the Company, held on the 1st day of January, 1911, at New York, New York.

Witness my hand and the seal of the Company this 1st day of January, 1911.

Secretary

Very truly yours,

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**NEISE
MODERNTOOLS**

*presents an
exceptionally fine
precision instrument*

for

ZD

Zero Defects

the



Opto-Mike

has

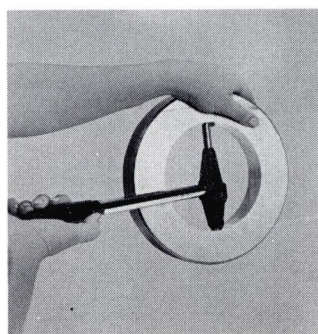
XA

Extreme Accuracy

What every **ZD**-conscious organization

- ◆ Its DEFINITION — an optical bore gage for internal measuring.
- ◆ It measures through OPTICS for extreme precision.
- ◆ It measures DIRECTLY, not by comparison.
- ◆ It GUARANTEES repetitive readings to .0001" in seconds. Its repeatability accuracy is .00004". Its optical scale accuracy is .000025".
- ◆ Sixteen models are available in two groups. The regular OPTO-MIKE group comes in 11 instruments ranging from .800"-6.000". The MICRO-OPTO-MIKE group comes in five instruments ranging from .240" to .800".

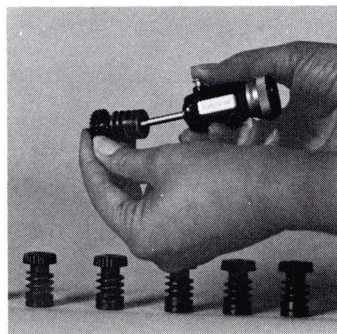
The **OM** is extremely simple to operate...



1. Insert and sweep!



2. Read — that's all.



3. Same simple procedure for the Micro-Opto-Mike.

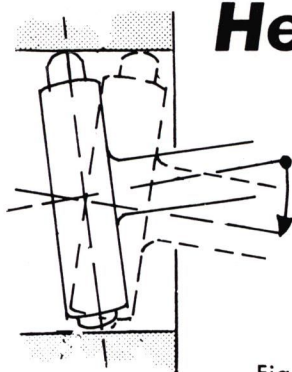


Fig. 1

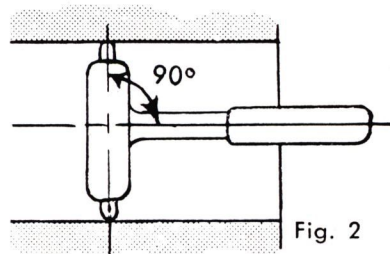


Fig. 2

Here is how the **OM** works...

The Opto-Mike is inserted into the hole at an angle (fig. 1). By tilting it in the direction of the arrow a measurement is taken. The measuring anvil (1) is acted on by a constant spring pressure. It may be telescoped into the head but cannot move outwardly again—due to the locking action of a wedge brake. When tilting into the hole the measuring anvil (1) is depressed into the head of the instrument until the true diameter is reached, and locks in that position. The tilting action also centralizes the anvil with respect to the bore. The precise

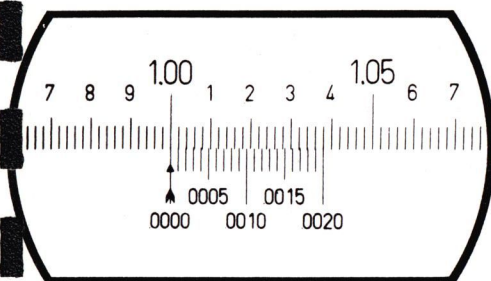
optical scale is mounted on the telescoping plunger, the only moving part.

This 2-point measuring instrument (fig. 2) makes it possible to measure a bore which is not perfectly round. The diameters of such a bore which may differ in only a few ten-thousandths of an inch may be measured by taking two readings at 90°. The Opto-Mike eliminates all the errors of "feel and approximation." It also eliminates cumulative error and lost motion of instruments using lead screws, nuts, ratchets and wedges.

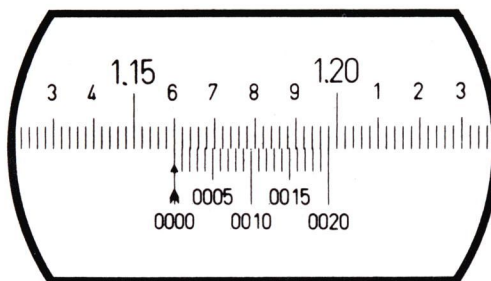
The **OM** is more than an aid to **ZD**

should know about the OPTO-MIKE

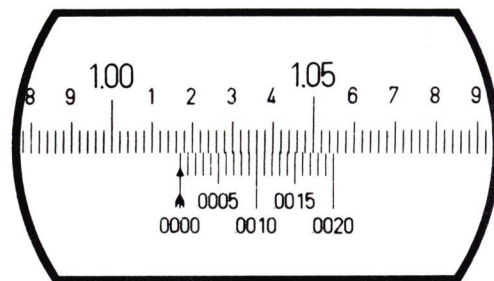
Examples of .0001" scale readings



Each division of upper scale — .002"
Each division of lower scale (vernier) — .0001"



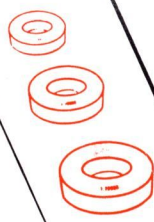
Upper scale — 1.160"
Lower scale — .0000"
Dimension — 1.1600"



Upper scale — 1.016"
Lower scale — .0010"
Dimension — 1.0170"

Match the OM's advantages against other systems of measurements...

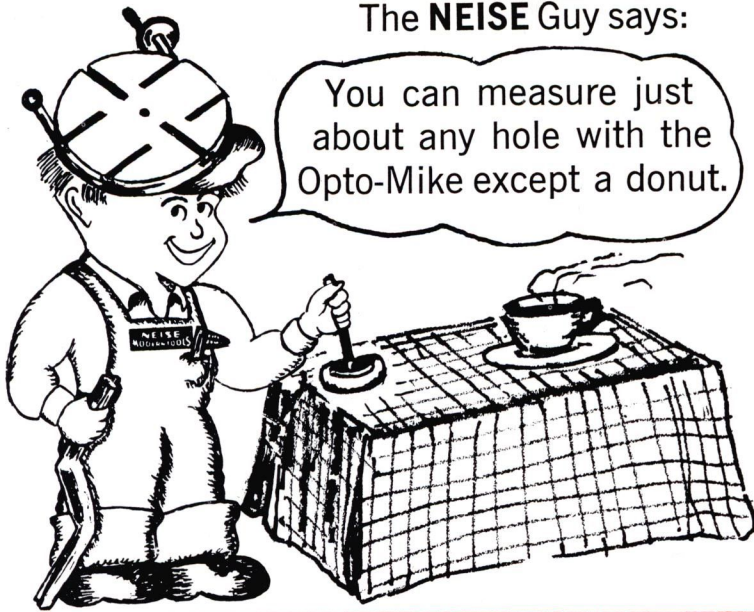
No special skills required — no special "feel" — no presetting — no ring gages. The Opto-Mike is self-centering, self-setting, direct reading. Virtually no chance of human error.

	OPTO-MIKE 	DIAL GAGE 	MICROMETER (TYPE A) 	MICROMETER (TYPE B) 	ELECTRONIC & AIR GAGE 	RING GAGE 
GRADUATIONS	.0001"	.0001"	.0001"	.0001"	.0001"	.0001"
ACCURACY	.00004"	.0015"	±.0001" to ±.0005"	±.0001" to ±.0005"	Dependent Upon Comparison Master Ring Gages	±.0001"
RANGE OF INSTRUMENTS	.240" to 6.00"	.250" to 6.00"	.188" to 4.00"	.275" to 6.00"	±.0024"	NOT APPLICABLE
TYPE OF MEASUREMENTS	DIRECT Uninfluenced by Operators Feel	COMPARISON	DIRECT Dependent Upon Operators Feel	DIRECT Dependent Upon Operators Feel	COMPARISON	
CHANCE OF HUMAN ERROR	NIL	YES	YES	YES	YES	
EXTENSION AND SETTING RINGS	NO	YES	YES	YES	YES	

— it sets its own standard of quality.

The **NEISE** Guy says:

You can measure just about any hole with the Opto-Mike except a donut.



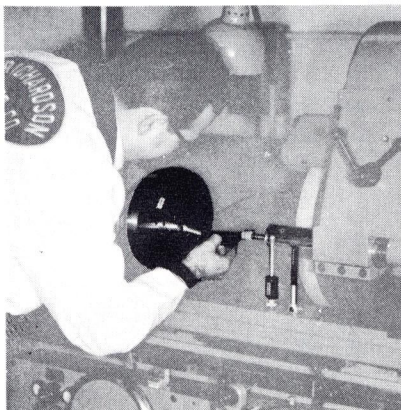
Manufacturer reserves the right to improve construction without notice.

MICRO-OPTO-MIKE

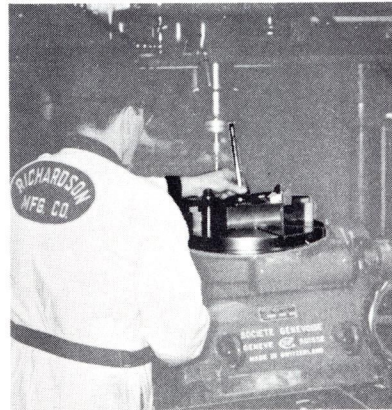
SIZE	RANGE
A	.240" - .280"
B	.280" - .340"
C	.340" - .440"
D	.440" - .600"
E	.600" - .800"

OPTO-MIKE

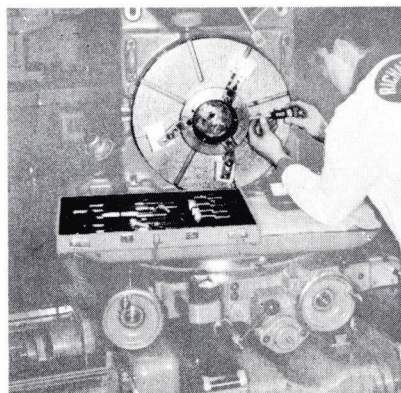
1	.800" - 1.000"
2	1.000" - 1.200"
3	1.200" - 1.400"
4	1.400" - 1.700"
5	1.700" - 2.000"
6	2.000" - 2.400"
7	2.400" - 2.800"
8	2.800" - 3.400"
9	3.400" - 4.000"
10	4.000" - 5.000"
11	5.000" - 6.000"



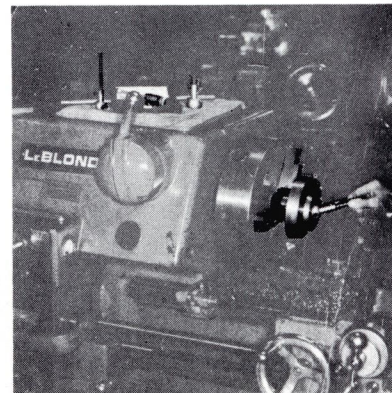
1. Measuring a bore in a cylindrical grinder.



2. Measuring a bore in a Sip-Hydroptic Jig Borer.



3. Measuring a bore in a Dixi Horizontal Jig Borer.



4. Measuring a bore in a Le Blond Lathe.

The Opto-Mike in action is shown by the courtesy of Richardson Mfg. Co., Springfield, Illinois.

SETS

SET 0	FIVE INSTRUMENTS: MICRO-OPTO MIKE. SIZES A THROUGH E Measuring from .240" to .800"
SET 1	SIX INSTRUMENTS: Sizes No. 1 through No. 6 Measuring from .800" to 2.400" With Carrying Case
SET 2	FIVE INSTRUMENTS: Sizes No. 7 through No. 11 Measuring from 2.400" to 6.000" With Carrying Case
SET 3	ELEVEN INSTRUMENTS: Sizes No. 1 through No. 11 Measuring from .800" to 6.000" With Carrying Case

Sole U.S.A. Representative and distributor

KARLA. NEISE. INC. 56-02 ROOSEVELT AVE., WOODSIDE, N. Y. 11377—Phone: 212 HI 6-7799

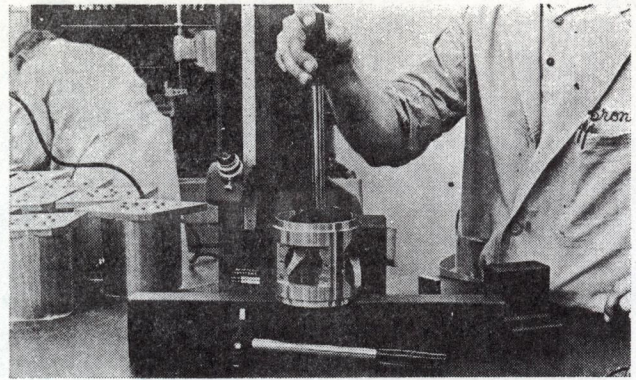
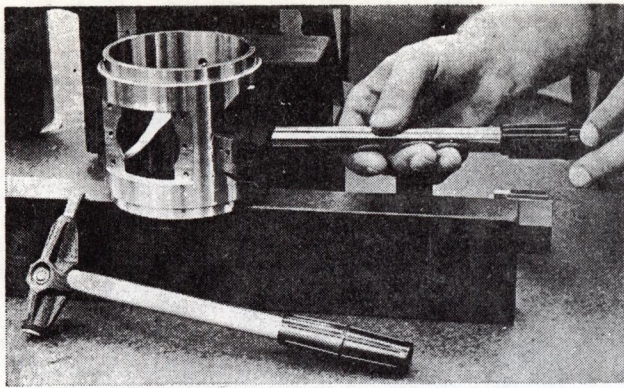


Fig. A & B. Two Measurements with Opto-mike on Gyro Missile Components.

The Case of Measurement over Comparison

"As our contribution to clarity of definition in describing measuring devices and techniques" says Jule A. Scholl of Karl A. Niese, Inc., "we try to show, in our catalog descriptions, the fallacies that can occur in measuring—especially where the human element is concerned. One must consider that nothing is made absolute. That the design of an instrument must have some tolerance for manufacturing.

Mr. Scholl's observations stem from interest generated by publication of "Man and the Instrument" by Ted A. Busch in *PRODUCTION EQUIPMENT* (February 1966).

"The more precise the instrument" says Mr. Scholl, "the fewer parts it will have in order to avoid additive tolerances. Besides mechanical tolerances, the final measurement in most cases is also influenced by the human element, where feel and psychology are involved.

With reference to the expert opinion of Ted Busch, his example points out that a micrometer which supposedly measures .0001 over an inch of movement is only an interpretation of the errors of manufacture; the micrometer lead screw error; the lead screw nut and its clearance for turning smoothly; the tolerance of the engraving on the barrel and the thimble; the variations of torque applied by the ratchet. Finally, the heavy thumbed operator interprets the whole package into a reading. This means that although a reading of .0001" is indicated the accuracy of the micrometer is in the area of .0015".

The foregoing is true of all instruments of the lead screw type—both internal and external. In the case of the OPTO-MIKE, an optical bore gage for internal measuring, there is only one moving part—the telescoping plunger. Fastened to the plunger is a crystal glass scale engraved to an accuracy of .000025" over the entire range. In the magnifying lens the .0001" vernier is engraved. You will

notice now the approach to accuracy.

The OPTO-MIKE itself is manufactured to a preciseness 4 times better than its reading. It is *not* influenced by the operator and its repeatability is .00004".

This system is the same as that used on the Sip, Dixi and other Swiss and German jig borers to get the accuracy of position measurements. Does it not make sense to use a similar type of instrument to measure the resulting bores these machines make? Otherwise, the work these machines are capable of producing is downgraded by checking the bores with instruments of inferior accuracy.

Many times we have encountered the unfair or uniformed comparison of electronic or air gaging. For example, an air gage or electronic gage can measure to a position from .00002" to .00005" with ease over a range of perhaps .003". However, the transferring of this accuracy reverts to comparison. To use this type of gaging involves the following: a reliable, filtered dry air supply at a cost of \$100 to \$300; A gaging amplifier costing from \$250 to \$600; a set of plug gages or probes for every .003" (a range of .250" to 6.000" would require 1900 gages or probes at a cost of a few dollars to hundreds of dollars each); a pair of setting rings for each gage or probe at a similar cost and a set of moisture resisting storage cabinets for safeguarding these instruments.

To start to use this system it requires a good technician a half hour or more to set up a working tolerance for use on any one bore size. The total investment could come to \$10,000-\$15,000.

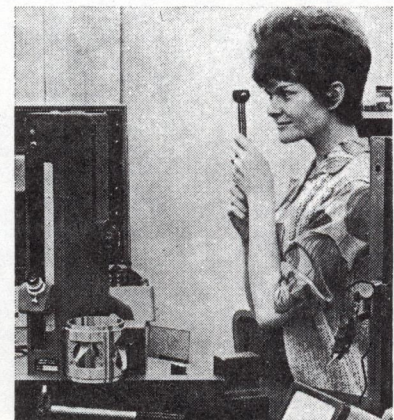
Since there is only one amplifier with the big investment of gages,

probes and rings, only *one* man can work, unless the shop buys another expensive amplifier. Again, they are still comparing measurements against all the variations of rings, gages, probes, air, moisture, etc., within an area of only .003".

On the other hand, the OPTO-MIKE complete set ranging from .240" to 6.000" with 16 instruments will measure—not compare, in increments of .0001" to an accuracy of .00004" or better continuously over the 6-inch area at a total cost of \$4,155.

The OPTO-MIKE requires no special setting rings. It has carbide wear surfaces and can be adjusted for temperature or wear and has no apron strings, such as cables or hoses to restrict the area of its use. In addition, since the range of measurement for each instrument overlaps that of the next instrument by a few thousandths, graduated measurements can be transferred from one OPTO-MIKE to the next. If you have 16 sizes of bore, 16 men can work simultaneously. These advantages are provided at ¼ the investment in equipment and with no technicians' labor for adjusting the instruments to each dimension. ■

Fig. C. Direct optical reading on Opto-mike by a Q.A. inspector.



Editor: Mr. Scholl is Executive Vice President of Karl A. Niese, Inc. the instrument people, of Woodside, New York. Contact can be made with Mr. Scholl at that company, whose address is 56-02 Roosevelt Ave., Woodside, New York 11377. Photos used, courtesy Bronner Mfg. & Tool Co., of Hanover, N.J.

Don't trust mike 'feel'!

Men differ in feel—and there's no margin for error in this day of close tolerances. Recent tests at GE (influenced and uninfluenced) prove the point



A man's hand is a torque wrench when he twists the barrel of a micrometer to measure a dimension.

To a degree, that is.

The hand can twist the barrel all right, but unlike the torque wrench, it is not mechanically calibrated to read the precise amount of torque. The only torque calibration in the human hand is 'feel'—and feel can be pretty unreliable when you are dealing with the super-close tolerances in demand today.

Influencing feel

The hand is subject to orders from the brain, and the brain can be influenced, consciously or no.

Tell an inspector, for example: 'The best mechanic in the shop made this part,' and influence enters the picture. Or to carry this to an extreme: Suppose you are working in a very small shop and the boss walks over, 'Check this part out, will you? I made this one myself.'

That's influence with a vengeance—something like a wife's 'How do you like my new hat, dear?' Any husband knows the answer to that one.

Those are the extremes in influence, almost brainwashing. There are more subtle kinds, too.

For instance, if a man knows what size a part *ought* to be, his measurement tends to be closer to that size than it would if he had no idea what he is shooting for.

Point is that feel is a variable ingredient in measuring—too variable for measuring tolerances to 'tenths.'

To prove this point, GE experimenters set up two test conditions:

■ **Uninfluenced measuring**, where in men were asked to measure

work-pieces of unknown dimension, using micrometers without ratchets or friction control, and calipers of varying size. In other words, they were not told what size of workpiece they would be expected to measure, nor were they told what readings were obtained by the other operators who preceded them in the test.

■ **Influenced measuring**. Here, two test conditions were established. In one, each operator established his feel by practicing on a known dimension and applying a similar feel in measuring an unknown one. In the second, he was told the size of the dimension before actually measuring it.

Results of the tests

Let's take a look at what happened: under uninfluenced conditions (measuring unknown dimensions) fifteen men came up with seven different readings.

Under influenced conditions (measuring a known dimension before tackling an unknown one, that is, the operator is influenced but not as bad as the boss's 'Watch it, Buster, I made this one myself' kind of influence) twenty men got five different readings.

But when twenty men were told the actual dimension before measuring it, they got only two different readings and fifteen of them got the reading they were told they could expect to get.

Conclusion: you just can't trust operators' feel—the more they know about the workpiece, the more they agree on what it measures.

And that brings up a question: What profit is there in gaining reliability with precision machines, automation, and the like only to lose it with unreliable inspection?

Uninfluenced measuring

In the uninfluenced experiments (see table), machine operators measured parts without referring

to drawings. Thus they were not aware of what dimensions they were measuring and were not told of measurements taken by other operators during the tests.

Before the operators began measuring, the instruments were carefully inspected in a Standards Room; only those which were in good condition were used in the experiments. To eliminate temperature differences, the instruments and samples were kept on a table for one and one-half hours before the tests. The participating operators came in one at a time and did their measuring at this table, because it was reasoned that the readings could be biased if the instruments and samples were carried through the shop to each operator. Only men who consistently used such instruments in their work were asked to participate.

Each sample piece was marked precisely at the points to be measured. Thus false measurements, such as those which can occur when diameters are not precisely round, were avoided.

During the first phase of the test, 2-3 inch, 6-7 inch, and 8-9 inch inside micrometer calipers were used. These had no ratchet or friction control. The 2-3 inch micrometers had tenth graduations inscribed, but the 6-7 inch mikes and the 8-9 inch mikes were not of the vernier type, so that tenth readings had to be estimated.

The second phase of these uninfluenced tests involved measurements of inside and outside diameters with 12-inch and 24-inch vernier calipers. These calipers were read with the aid of a magnifying glass, and each operator was asked to estimate his reading for the ten thousandth place. Admittedly, this was not a realistic request, but was made to determine whether the reading was above or below the thousandth place.

[Continued on next page]

By Walter F Conroy
Quality Control Engineering
General Electric Co
West Lynn, Mass

Don't trust mike 'feel' . . .

Even though operators use vernier calipers less frequently than micrometers, no outside micrometer checks across the vernier legs were permitted. The experiments were set up to test reading accuracy itself, and whether or not the method of obtaining the readings is consistent with good shop practice can be considered incidental to these experiments.

In the third and last phase of these tests, inside micrometer calipers in sizes from 1 to 20 inches, without tenth scale graduations, were used—tenths had to be estimated by the operators. Reading of bores were taken directly from the barrel of the inside micrometer. At the same time (consistent with the regulations for vernier caliper measuring) no outside micrometer check over the inside micrometer was permitted.

Results of these tests—the ranges of readings taken and the calculated ranges of overall shop accuracy, determined by a $\pm 3\sigma$ spread of the measurements (see footnote to table)—are tabulated in the table. While this analysis may not be characteristic of the capability of the majority of machine operators in industry to measure with these tools, the ranges of readings and calculated shop accuracy do indicate that such inspection instruments are not good enough for consistent, reliable measurement of close tolerance work.

Influenced measuring

The purpose of these experiments was to determine whether, and to what degree, machine operators are influenced in measuring. Two simple experiments were made under the same conditions described in the uninfluenced experiments, that is, the instruments were checked for good condition in the Standards Room before the tests, and the operators were not told what readings the other operators who preceded them had obtained. Known dimensions were measured or used in the measurements and only one type of inspection instrument, a 2-3 inch micrometer caliper, was used.

In the first experiment, the operator becomes influenced as follows: after selecting his inspection instrument, he measured a standard disk of precisely determined size. He then tried to match his instrument reading to the known disc or pin size. In this way, he

Uninfluenced measuring tests		
	Range of readings (difference between highest and lowest measurements)	Calculated range indicating overall shop accuracy*
Outside micrometer calipers (15 operators tested)		
2-3 inch size	0.0006 in.	0.0010 in.
6-7 inch size	0.0009	0.0015
8-9 inch size	0.0009	0.0015
Vernier calipers (20 operators tested)		
ID, 12-inch size	0.0033 in.	0.0058 in.
OD, 24-inch size	0.0080	0.0120
Inside micrometer calipers (20 operators tested)		
3.750-in. measurements	0.0015	0.0025
6.000-in. measurements	0.0019	0.0036
9.385-in. measurements	0.0031	0.0048
* The calculated range of overall shop accuracy is determined by a $\pm 3\sigma$ spread of the measurements taken. It can be interpreted as the limit range of readings that can be expected throughout the shop, based on the sample measurements from each test. Theoretically, 99.7% of shop readings should fall within this range		

determined his feel, and when he tried to apply a similar feel to the measurement of a workpiece, his reading was influenced.

A standard 3.0000-in. reference disk, purchased from Brown & Sharpe, was set up in a vise on an inspection table. A workpiece of unknown diameter and a 2-3 inch micrometer caliper were kept on the table at room temperature for one and one-half hours before this test.

Here, to show the effect that influences can have on measurement with 2-3 inch micrometer calipers, are the results of three tests, one uninfluenced and two influenced.

In the first (uninfluenced) test, 15 operators were asked to measure an unknown dimension:

Reading (inches)	Number of operators
2.3748	1
2.3749	0
2.3750	5
2.3751	2
2.3752	1
2.3753	4
2.3754	2

In this test, the range of readings or difference between the highest and lowest measurements among the 15 operators was 0.0006 in. A reasonable estimate of shop accuracy in measuring this piece is 0.0010 in., determined by the $\pm 3\sigma$ spread of the measurements taken.

In the next (influenced) test, 20 operators were allowed to practice their feel on a 3.0000-in. standard

disk before measuring the test workpiece:

Reading (inches)	Number of operators
2.5645	4
2.5646	4
2.5647	4
2.5648	6
2.5649	2

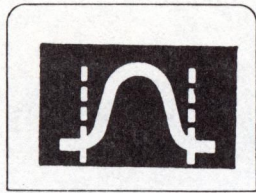
Here the range of readings among the 20 operators was 0.0004 in. Based on these measurements, a reasonable estimate of shop accuracy is 0.0008 in.

The effect of influence was even more apparent in the third test, in which the same 20 operators were actually told the dimension of the test piece (2.4378 in.) before measuring it:

Reading (inches)	Number of operators
2.4378	15
2.4379	5

Here the range of measurements among the 20 operators was only 0.0001 in., so that on this basis a reasonable estimate of shop accuracy is 0.0001 in.

These tests prove a point: consciously or subconsciously, operator feel can be influenced. And while those measuring instruments that depend upon operator feel for final accuracy may be OK for run-of-the-mill shop jobs, they certainly shouldn't be used in precision work where measurements are to 'tenths.' ■



INSPECTION AND QUALITY
CONTROL

TECHNICAL PAPER

CREATIVE MANUFACTURING SEMINARS PREPRINT

AMERICAN SOCIETY OF TOOL AND MANUFACTURING ENGINEERS
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For presentation at its
Engineering Conferences



A Case of Measurement Over Comparison

By

Jule A. Scholl
Executive Vice President
Karl A. Neise, Inc.

In our Zero Defects OPTO-MIKE literature, our company, Karl A. Neise, Inc. of Woodside, N. Y. tries to show the fallacies that can occur in measuring -- especially where the human element is concerned. One must consider that nothing is made absolute. That is, the design of an instrument must have some tolerance for manufacturing. The more precise an instrument, the fewer parts it will have in order to avoid additive tolerances, the final measurement in most cases is also influenced by the human element, where feel and psychology are involved.

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The above is true of all instruments -- both internal and external -- of the lead screw type. In the case of the OPTO-MIKE there is only one moving part -- the telescoping plunger. Fastened to the plunger is a crystal glass scale engraved to an accuracy of .000025" over the OPTO-MIKE's entire range. In the magnifying lens is engraved the .0001" vernier. You will notice now the approach to accuracy.

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- a reliable, filtered dry air supply at a cost of \$100. to \$300;
- a gaging amplifier costing from \$250. to \$600;
- a set of plug gages or probes for every .003" (a range comparable to the OPTO-MIKE from .240" to 6.000" would require 1900 gages or probes at a cost of a few dollars to hundreds of dollars each);
- a pair of setting rings for each gage or probe at a similar cost;
- a set of moisture resisting storage cabinets for safeguarding these instruments.

To start to use these systems require the time of a good technician for half hour or more to set-up a working tolerance for use on any one bore size. The total investment could easily come to \$10,000 - \$15,000.

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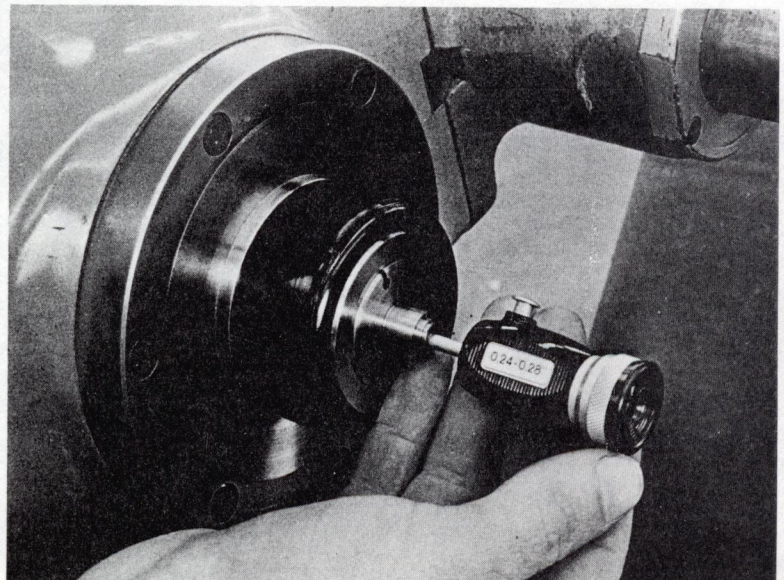
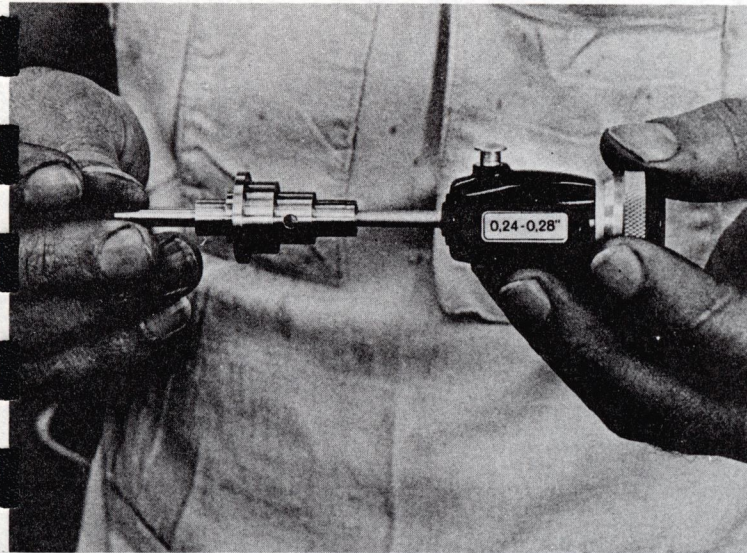
On the other hand, the OPTO-MIKE complete set ranging from .240" to 6.000" with 16 instruments will measure --not compare -- in increments of .0001" to an accuracy of .00004" or better, continuously over the 6-inch area at a total cost of \$4,155.

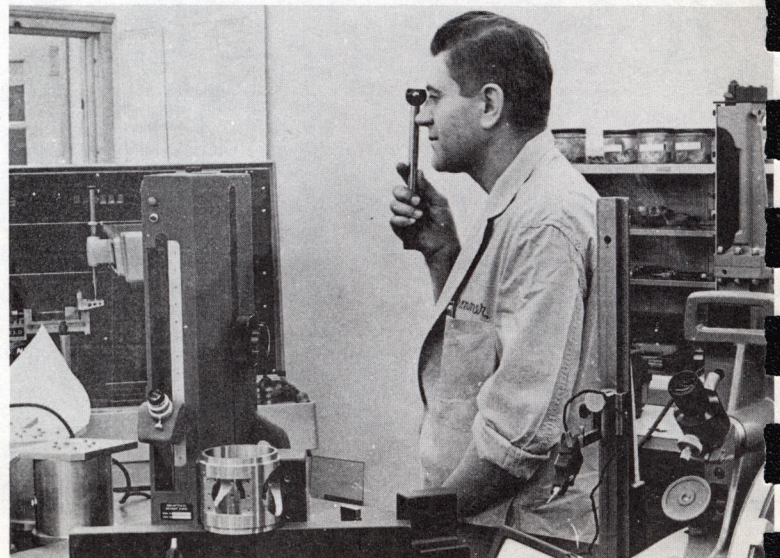
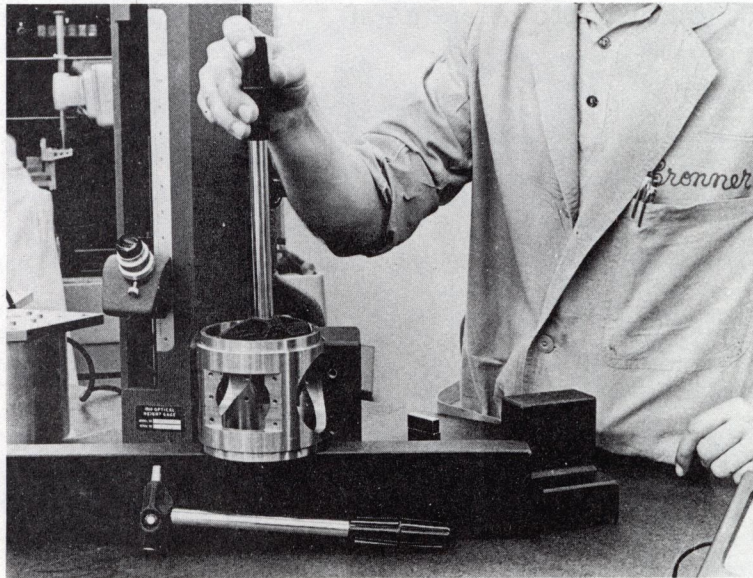
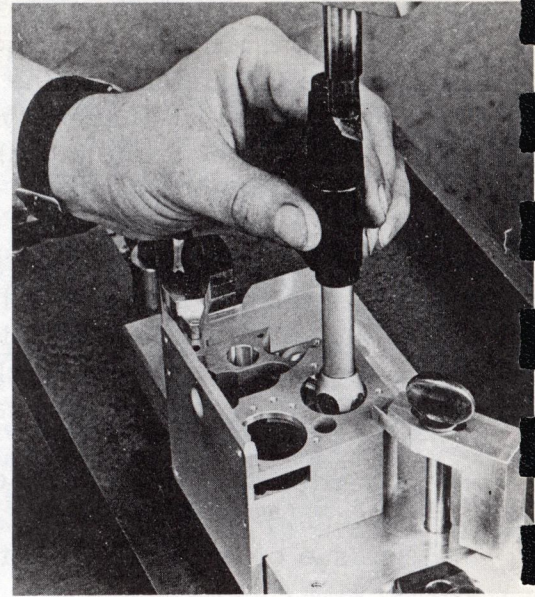
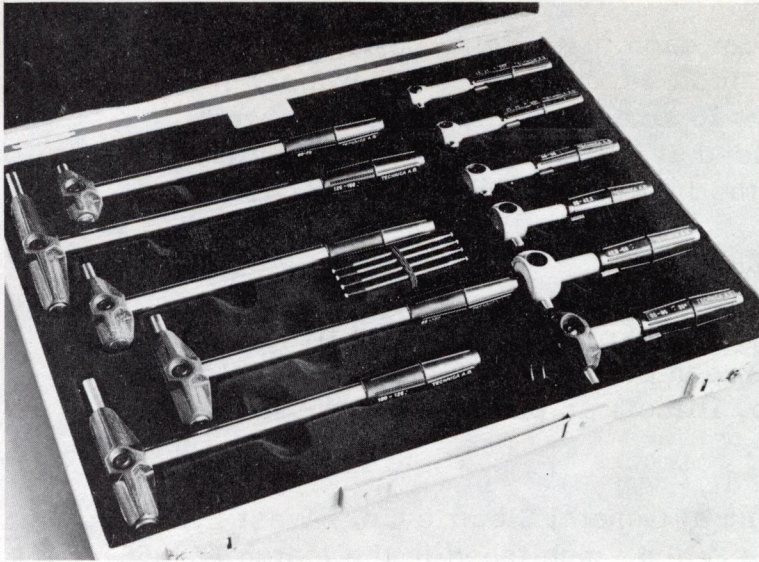
The OPTO-MIKE requires no special setting rings. It has carbide wear surfaces and can be adjusted for temperature or wear and has no apron strings, such as cables or hoses to restrict the area of its use.

In addition, since the range of measurement for each instrument overlaps that of the next instrument by a few thousandths, graduated measurements can be transferred from one OPTO-MIKE to the next. If you have 16 sizes of bore, 16 men can work simultaneously. These advantages are provided at 1/4 the investment in equipment and with no technicians' labor for adjusting the instruments to each dimension.

REFERENCES

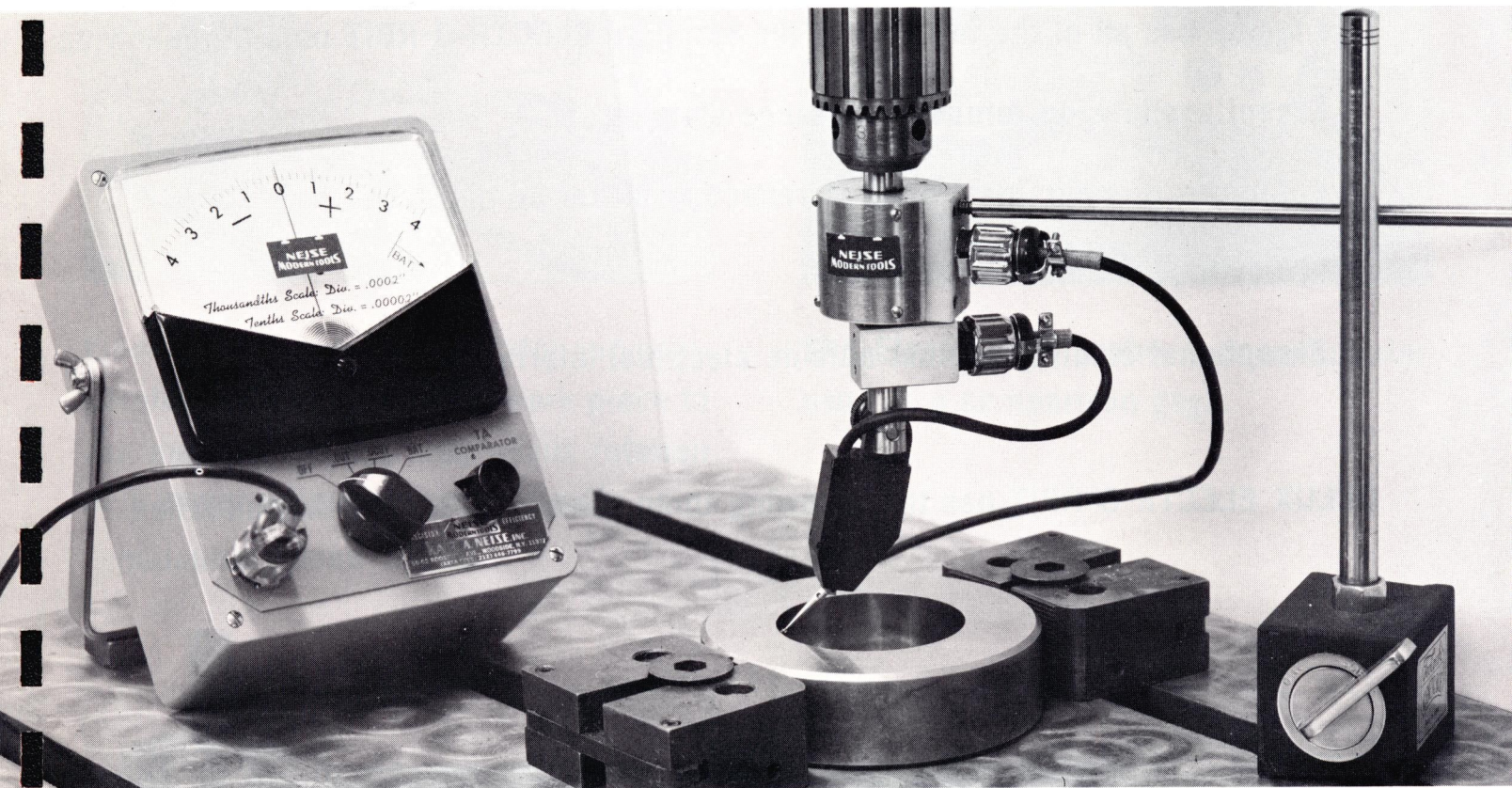
1. Ted Busch "Fundamentals of Dimensional Metrology" by Delmar Publishers, Inc. and the article "Classification and Comparison of Measuring Instruments also by Ted Busch of the Dundick Corp., Chicago, Illinois as published in the January 1965 issue of Tool and Manufacturing Engineer.
2. Walter Conroy, Quality Control Engineering at General Electric Co., West Lynn, Mass., from the article "Don't Trust Mike Feel", published in the March 1, 1965 issue of American Machinist.
3. The photos illustrated in this paper were taken on location at the Bönner Manufacturing and Tool Company, Hanover, New Jersey. (other photo references)





Electr-O-Rbit

THE PORTABLE CENTERING INDICATOR AND COMPARATOR



A rugged, reliable electronic comparator for quality control plus a precision centering indicator.

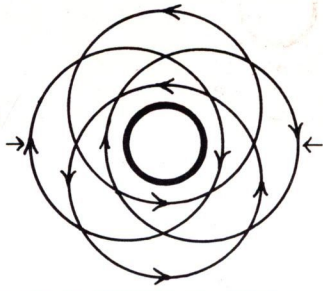
The ELECTR-O-RBIT multi-purpose comparator enables you to tram, to compare and to center indicate to twenty millionths of an inch while machine spindle rotates in its true orbit under its own power.

- Battery operated, use it anywhere.
- Two scales: .001", each graduation = .0002"
.0001", each graduation = .00002"
- You can use it on your jig borer, grinder, lathe, surface plate, checking fixtures and height gage.
- Visual dimension interpretation to .00001".

GUARANTEE:

One year guarantee on repairs, adjustments and replacement of parts except batteries.

Delux Electr orbit



This model has all of the features of the standard ELECTR-O-RBIT plus the following:

- Exceptionally wide temperature range stability
- Parallax errors eliminated due to reflecting mirror on dial face
- Visual interpretations to .000005"
- Exceptional stability against outside electrical interference

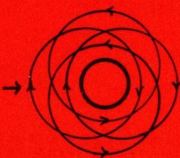
DELUX ELECTR-O-RBIT has the following three scales:

.001" each graduation

.0001" each graduation

.00001" each graduation

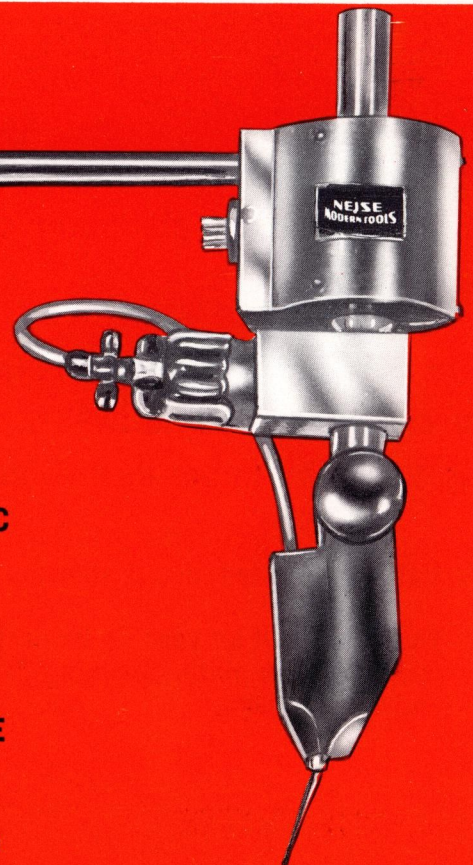
Electr orbit SPECIAL PROBE CARRIER



EXPAND THE USEFULNESS OF YOUR PRESENT ELECTRONIC COMPARATOR AND TAKE THE GUESSWORK OUT OF CENTER FINDING.

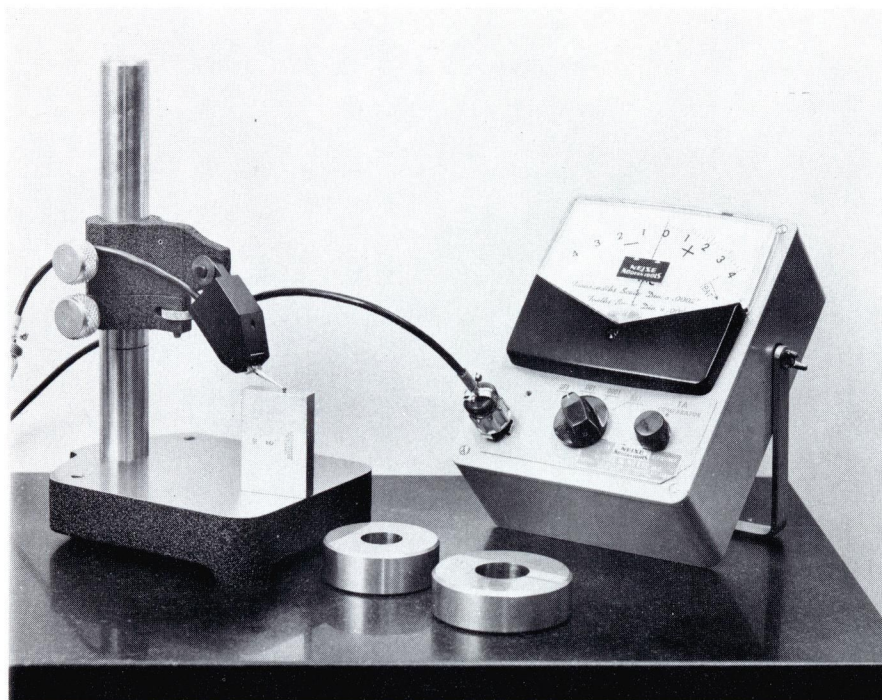
The ELECTR-O-RBIT special probe carrier can be retrofitted to your present electronic comparator and probe. It will enable you to use your present equipment for centering, etc. while the machine spindle is under power and rotating in its TRUE orbit.

The ELECTR-O-RBIT saves time and eliminates error. You have two hands free to adjust your X and Y coordinates. Make a true Jig Borer or Jig Grinder out of your present machines.



KAN ELECTRONIC COMPARATOR

GUARANTEED AGAINST MANUFACTURING DEFECTS FOR ONE YEAR



KAN ELECTRONIC COMPARATOR with standard probe Furnished in wooden case	\$302.00
DELUXE KAN ELECTRONIC COMPARATOR with standard probe Furnished in wooden case	\$434.00
KAN CHEK COMPARATOR STAND	\$31.50 extra

The above illustrated unit, when coupled with our rotating ORBIT probe carrier becomes the Electr-O-rbit. The rotating ORBIT probe carrier is used in the machine spindle for precise centering and tramping while the spindle is revolving on its own power, as shown in our Electr-O-rbit brochure.

SAVE — — — DO IT YOURSELF!

Convert your own electronic comparator to an Electr-O-rbit by connecting our rotating ORBIT probe carrier KIT. This is \$207.00 plus \$15.00 additional if you prefer to ship us your comparator for installing.

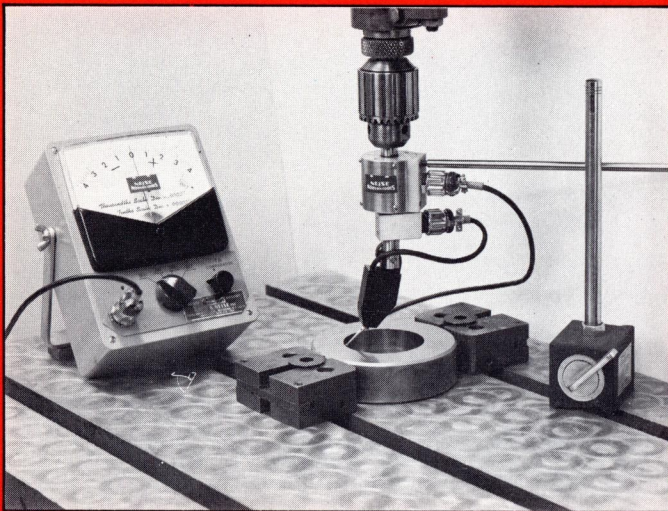
Long life battery operated

Not affected by power failure, line noise and disturbance

KARL A. NEISE, INC.

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Tel. (212) 446-7799

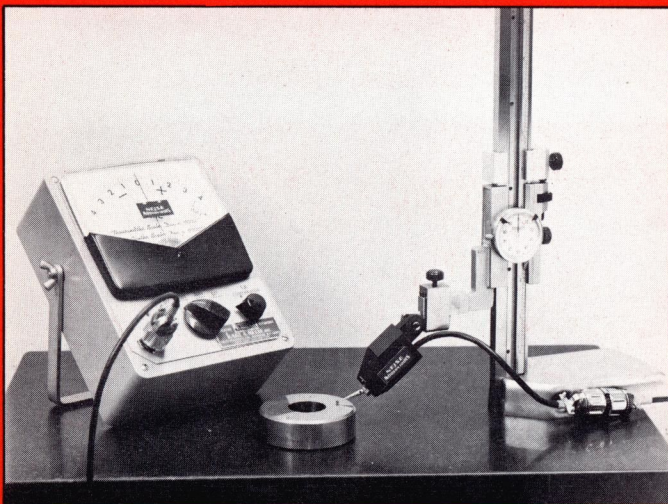
NEISE
MODERNTOLS



Electr-O-rbit centering indicator and comparator precisely positions work piece to the true orbit of the continuous rotation of a power driven machine spindle.



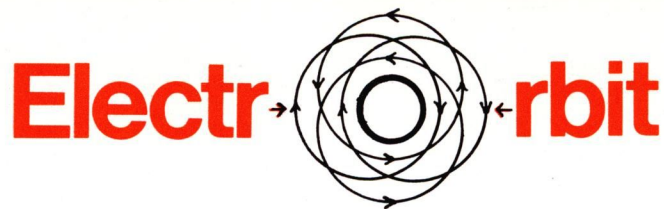
The Electr-O-rbit probe and comparator used as a comparison gage.



The Electr-O-rbit probe and comparator used to transfer measurement on a height gage.



The Electr-O-rbit complete in wood carrying case.



For years shops have been battling the elusive tenths of a thousandth (.0001") that seem to creep into the final bore position and cause many hours of lost work, innumerable pieces of expensive scrap and countless arguments with Quality Control.

The Electr-O-rbit overcomes several of the costly problems mentioned above.

Few operators are aware that 90% of the machines they work on have a common problem: the machine spindle does not bore the hole exactly where they pick it up after tramping an edge or indicating a bore.

The reason is simply that a stationary spindle with a mechanical or electronic indicator is not in the same rotating orbit as a spindle rotating under its own power uninfluenced by the operator.

It is impossible to read a mechanical indicator while the spindle is power operated and the mechanical rotating types, due to the many moving parts, are not precise enough to pick up a position. The Electr-O-rbit can do this.

This problem is magnified when indicating or tramping a work piece in horizontal spindle machines. The spindle when stationary settles through its oil film and no matter how large the spindle diameter, it sags as it is extended and is distorted still more by the operator turning it by hand.

To overcome this condition use the Electr-O-rbit with the spindle rotating under its own power. **The machine spindle then seeks its own operating orbit exactly where it performs its cutting operation.**

After years of field study, Moderntools Corporation, Division of Karl A. Neise, Inc., has developed the Electr-O-rbit to eliminate the off position bore. It results in considerable savings in time and work. Simply place the Electr-O-rbit in the machine spindle, rotate the spindle under its own power, and with two hands free move the X & Y to the zero position as indicated on the comparator, using the scale range suitable for your type of work.

Remove the Electr-O-rbit and let the shop use the probe and comparator for layout, inspection, comparison and quality control.

This multi-purpose instrument saves its cost many times over by reducing lost man hours and useless arguments with inspectors and customers.

The time savings produced by the Electr-O-rbit also mean more productive machine hours.

No shop no matter how small can afford to be without the Electr-O-rbit.

Another new, exclusive instrument brought to you by Moderntools Division of Karl A. Neise.

"Our 25 Years of Serving Industry are your Quality Assurance"

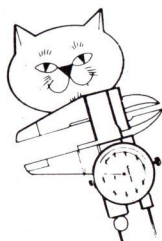
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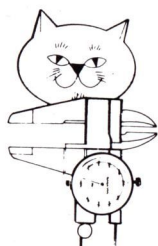


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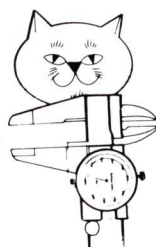
WHY SETTLE FOR COPYCAT CALIPERS ?



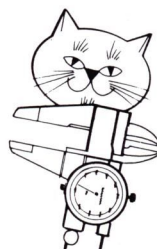
MITUTOYO



STARRETT



HELIOS

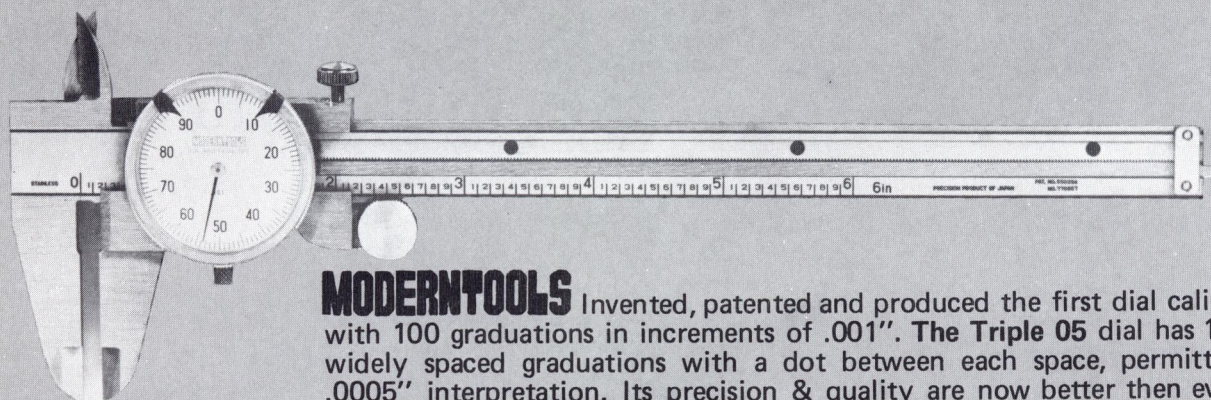


PAV



TESA BROWN
& SHARPE

BUY THE FIRST, THE ORIGINAL MODERNTOOLS TRIPLE 05° DIAL CALIPER



MODERNTOOLS Invented, patented and produced the first dial caliper with 100 graduations in increments of .001". The Triple 05 dial has 100 widely spaced graduations with a dot between each space, permitting .0005" interpretation. Its precision & quality are now better than ever. Our exclusive "Red Dot®" series features tungsten carbide electrically fused wear surfaces. Available from stock in 4", 6" and 10" sizes in standard and micro-screw construction.

Also Model MT 7 in extended lengths - 12", 18" & 24" - with Triple 05 dial & patented, exclusive, TRULY COVERED SHORT RACK.

MEASURE CURVED WALLS accurately with exclusive CALI-NEO BALL that fits all calipers. \$ 1.50.

ASK FOR DETAILED BROCHURE ON OUR DIAL AND VERNIER CALIPERS (INCH and METRIC) SPECIAL, MULTI-PURPOSE CALIPERS AND EXTENDED LENGTH, PATENTED SHORT RACK DIAL CALIPERS.

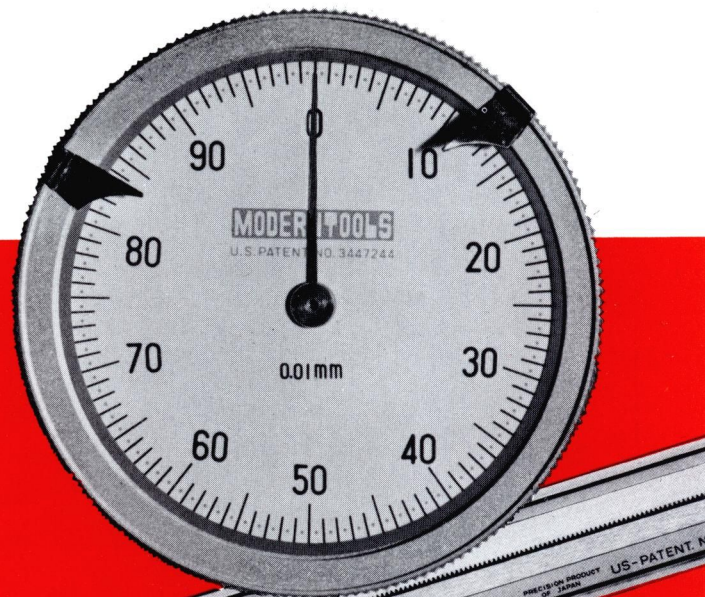
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**NEISE
MODERNTOOLS**

MODERNTOOLS STARTS ANOTHER REVOLUTION



WITH ITS PATENTED
"DOUBLE 05"
METRIC DIAL CALIPER

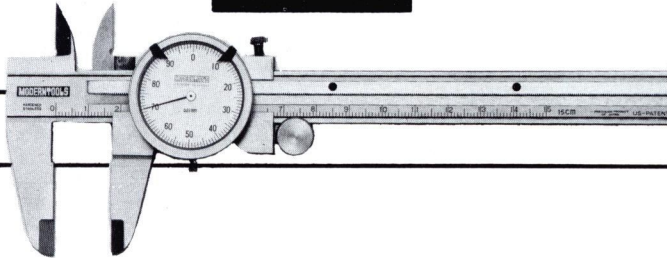
ONE MILLIMETER PER REVOLUTION OF DIAL

EACH GRADUATION OF DIAL IS 0.01mm

DOT BETWEEN DISCRIMINATE TO 0.005mm

MODERNTOOLS METRIC

NEISE
MODERN TOOLS



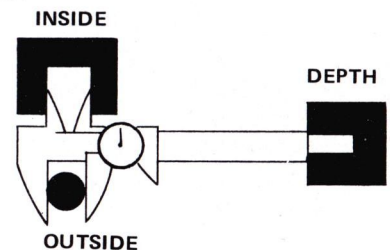
MODEL MT-11 "DOUBLE 05"

- * Each graduation of dial is 0.01 mm
Dot between discriminates to 0.005 mm
- * One millimeter per one revolution of dial
- * Capacity 0-150 mm
- * Outside, Inside and Depth Measurement
- * Adjustable tolerance markers
- * Hardened Stainless Steel
- * Dissimilar metal construction of sliding and rolling movements provides self-lubrication
- * Shock Proof * Anti-Backlash Mechanism
- * Non-Magnetic gear rack repels ferrous contaminating chips

EXCLUSIVE

RED DOT JAWS-

TUNGSTEN CARBIDE, ELECTRICALLY-FUSED WEAR SURFACES-OPTIONAL



MODERNTOOLS ARE THE RELIABLE CALIPERS WHETHER YOU MEASURE IN INCH OR METRIC SYSTEM.

ASK FOR OUR INSTRUMENT BROCHURES FOR DIAL AND VERNIER CALIPERS, SPECIAL, MULTI-PURPOSE CALIPERS AND EXTENDED LENGTH, PATENTED SHORT RACK DIAL CALIPERS.

KARL A. NEISE, INC.

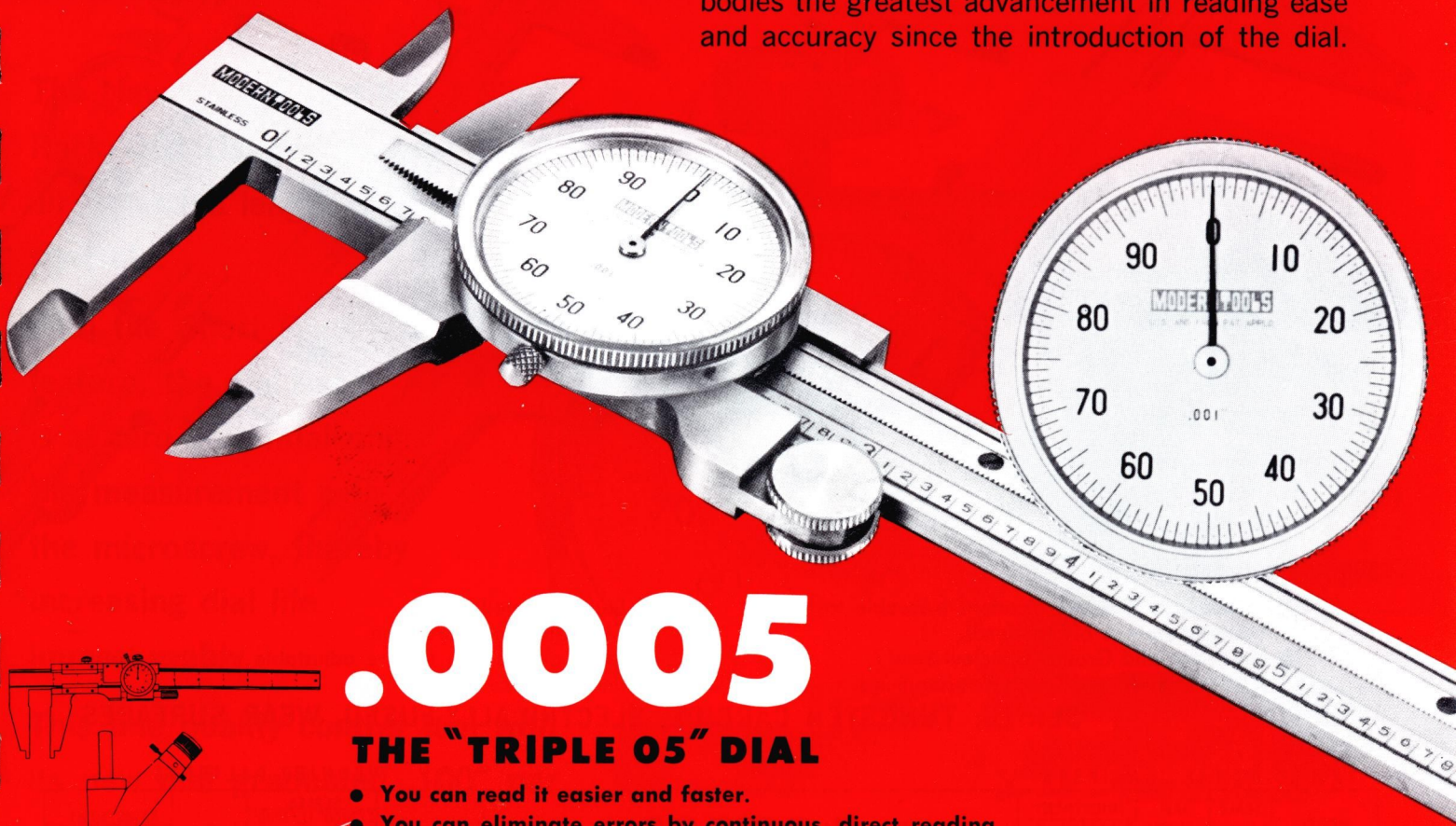
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PHONE: 212-446-7799

WOODSIDE, NEW YORK 11377
CABLE ADDRESS: KARLNEISE

NEISE
MODERN TOOLS

MODERNTOOLS CORP

MODERNTOOLS now offers a caliper which embodies the greatest advancement in reading ease and accuracy since the introduction of the dial.



.0005

THE "TRIPLE 05" DIAL

- You can read it easier and faster.
- You can eliminate errors by continuous, direct reading.
- You can read .0005".
- You can discriminate to .00025".

All of the above advantages have been added to the already superior qualities of the Moderntools series of dial calipers and dial height gages, including MT-7 dial caliper series with the unexposed short gear rack available in sizes 12", 18" & 24".

Together with the completely hardened and ground construction, adjustable tolerance dial, lifetime lubrication and satin chromed scales of our standard instruments, the "Triple 05" dial makes all other instruments in the field obsolete.

Available NOW from your authorized Moderntools dealer.

Moderntools Corp., Div. of Karl A. Neise, Inc., leads the way and has continuously anticipated the needs of industry to better the quality, dependability and accuracy of its vernier and dial calipers.

Innovations have been permanent lubrication; more precise engraving; smoother action; larger dials for better readability. Moderntools also pioneered the new .100" per revolution dial with .0005" divisions and .00025" discrimination.

KARL A. NEISE, INC.

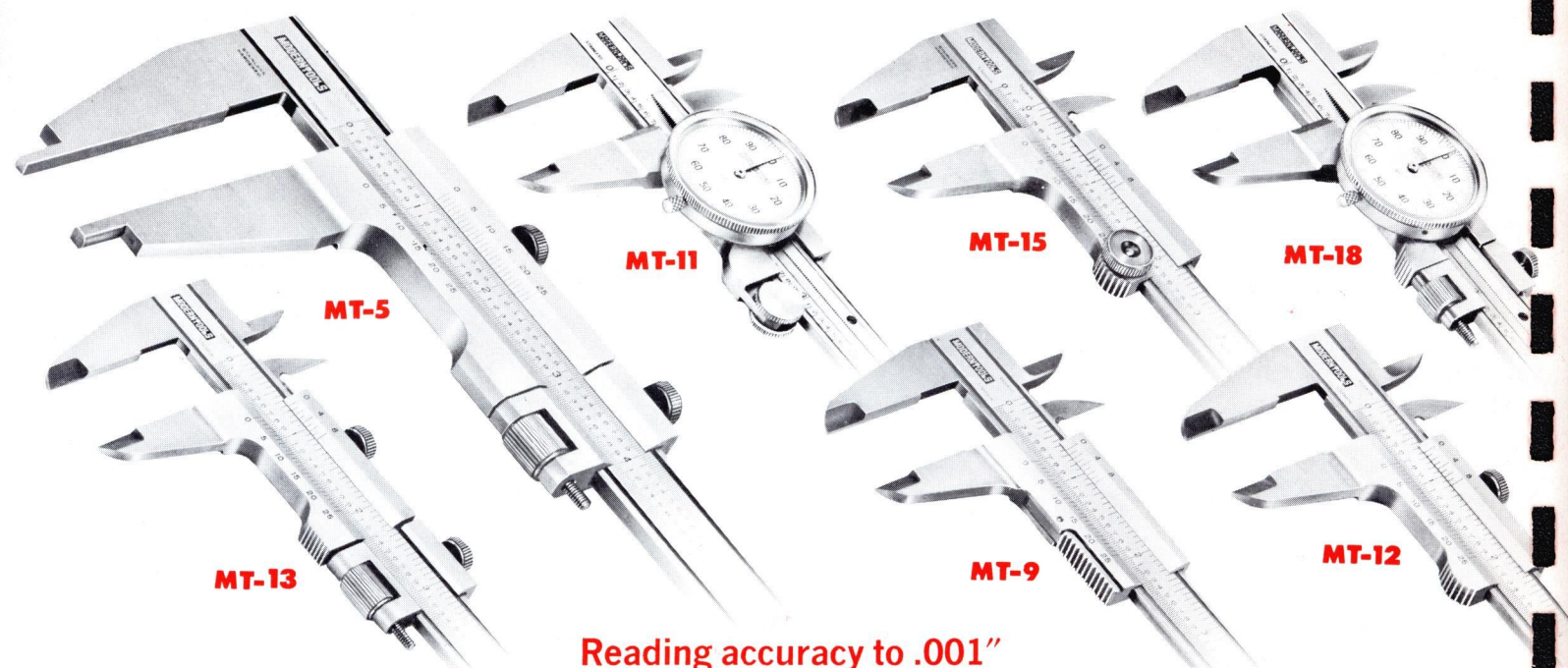
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PHONE: 212-446-7799 CABLE ADDRESS: KARLNEISE

SPECIAL OFFER

OUR NEW EXCLUSIVE
CALI-NEO BALL
FITS ALL CALIPERS
FREE WITH EACH MT-7
OR ULTRA-MET CALIPER



CALIPERS TO SUIT EVERY NEED



Reading accuracy to .001"

- Manufactured to specifications traceable to the National Bureau of Standards
- Hardened and Ground Stainless Steel Inside, Outside and Depth Measurements

- Satin Chromed Scales
- Clean, lifetime lubrication
- Dial Calipers also feature adjustable tolerance dials and tolerance markers

NEW RED DOT • SERIES: TUNGSTEN CARBIDE, ELECTRICALLY-FUSED, WEAR SURFACES

TRIPLE-05 DIAL CALIPERS

MODEL	SCALE 1/1000"	JAW LENGTH	ADJUSTMENT	
			Roller	Micro
MT-11/4"	•	1 $\frac{1}{16}$	•	
MT-11/6"	•	1 $\frac{1}{16}$	•	
MT-11/8"	•	2 $\frac{1}{2}$	•	
MT-11/10"	•	2 $\frac{1}{2}$	•	
MT-11/12"	•	2 $\frac{1}{2}$	•	

TRIPLE-05 MICRO-SCREW DIAL CALIPERS

MT-18/4"	•	1 $\frac{1}{16}$		•
MT-18/6"	•	1 $\frac{1}{16}$		•
MT-18/8"	•	2 $\frac{1}{2}$		•
MT-18/10"	•	2 $\frac{1}{2}$		•
MT-18/12"	•	2 $\frac{1}{2}$		•

NEW

MODEL "DOUBLE 05"
METRIC DIAL CALIPER

See Separate Brochure

SPECIAL OFFER

OUR NEW EXCLUSIVE
CALI-NEO BALL
FITS ALL CALIPERS
FREE WITH EACH MT-7
OR ULTRA-MET CALIPER



VERNIER CALIPERS

MODEL	SCALES		JAW LENGTH	ADJUSTMENT	
	1/1000" & 1/20MM	1/1000" & 1/128"		Micro	Lock or Knob
MT-5/12"		•*	2 $\frac{3}{4}$	•	
MT-5/24"		•*	3 $\frac{1}{16}$	•	
MT-9/6"	•		1 $\frac{1}{16}$		•
MT-12/6"	•	•	1 $\frac{1}{16}$		•
MT-12/8"	•		1 $\frac{1}{16}$		•
MT-12/12"	•		2 $\frac{1}{2}$		•
MT-13/6"	•		1 $\frac{1}{16}$	•	
MT-13/8"	•	•	1 $\frac{1}{16}$	•	
MT-13/12"	•		2 $\frac{1}{2}$	•	
MT-15/6"	•		1 $\frac{1}{16}$		•
MT-15/8"	•		1 $\frac{1}{16}$		•

*MT-5 HAS ONLY 1/1000" SCALES FOR INSIDE AND OUTSIDE MEASUREMENTS

DIAL INDICATORS

MODEL	DIAL SIZE	RANGE	GRAD
MT-A	1 $\frac{1}{4}$ "	.030"	.0005"
MT-C	1 $\frac{1}{4}$ "	.010"	.0001"
MT-G	2 $\frac{3}{4}$ "	.400"	.0005"
MT-H*	2 $\frac{3}{4}$ "	.200"	.0001"

*Type "H" with plunger



All these precision dial indicators are jeweled. Team them with MODERN TOOLS MAGNETIC BASE for an inexpensive measuring combination. Team with KAN-CHECK for an inexpensive Comparator Stand. Case included in price.

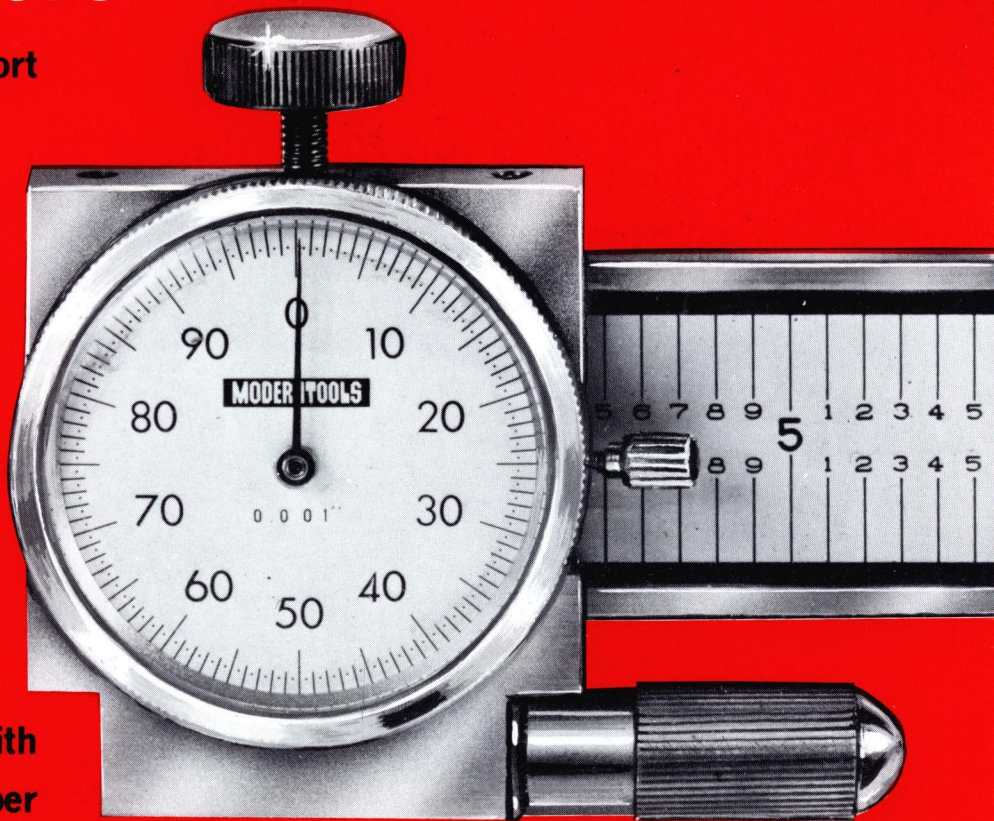
MODERNTOOLS CORP

Your Quality Control Caliper Is Now Here

The Newly developed MT 7 Short Rack Dial Caliper makes all extended length calipers obsolete.

With the Short Rack feature, the dial hand is at zero until finalizing the measurement with the microscrew, thereby increasing dial life immeasurably.

This fine quality control tool with its new dial graduated $.100''$ per revolution tells you immediately whether the dial is plus or minus, and eliminates repeated confirmations of previous measurements.



NEW!

Our Exclusive
Cali-Neo Ball
FREE
With Ea. MT-7

Meet Government Specifications traceable to the National Bureau of Standards.

Now Available In NEW **RED DOT** • Series: Tungsten Carbide, Electrically-Fused, Wear Surfaces

MODERNTOOLS CORP

NEW!

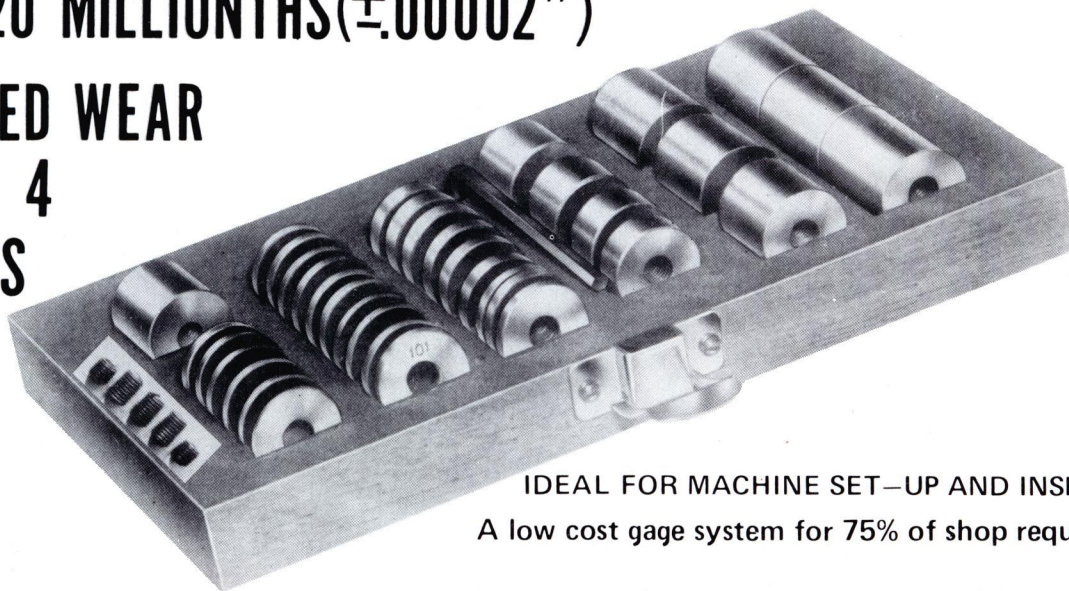
MODERNTOOLS

KAN SHOP GAGE BLOCKS

PRECISION: 20 MILLIONTHS($\pm .00002''$)

DOUBLE LAPPED WEAR
SURFACES TO 4
MICRO INCHES

HARDENED TO
65 ROCKWELL



IDEAL FOR MACHINE SET-UP AND INSPECTION.
A low cost gage system for 75% of shop requirements.

STANDARD 35 piece set in Wooden Case including wrench and clamping screws \$79.00

Blocks are $\frac{3}{4}''$ OD and $\frac{1}{4}''$ x 28 threaded ID for clamping.

Set consists of inch size blocks as follows:

.050	.060	.070	.080	.090	.100
.101	.102	.103	.104	.105	.106
.107	.108	.109	.110	.120	.130
.140	.150	.160	.170	.180	.190
.200	.300	.400	.500	.600	.700
.800	.900	3 pieces 1.000			

OPTIONAL SIZES AVAILABLE:

0625, .125, .250, .625, .750	each	\$ 2.75
End Blocks .500	each	2.75
.1001 to .1009	set	30.00
.111 to .119	set	27.00
2.000''	each	5.00
4.000''	each	8.00
6.000''	each	10.00

METRIC SET: 43 pieces as follows: Set 97.00

1 mm to 25 mm (1 mm increments) 25 pcs.
1.1 mm to 1.9 mm — 9 pcs.
1.01 mm to 1.09 mm — 9 pcs.

Prices are FOB Woodside warehouse and subject to change without notice.

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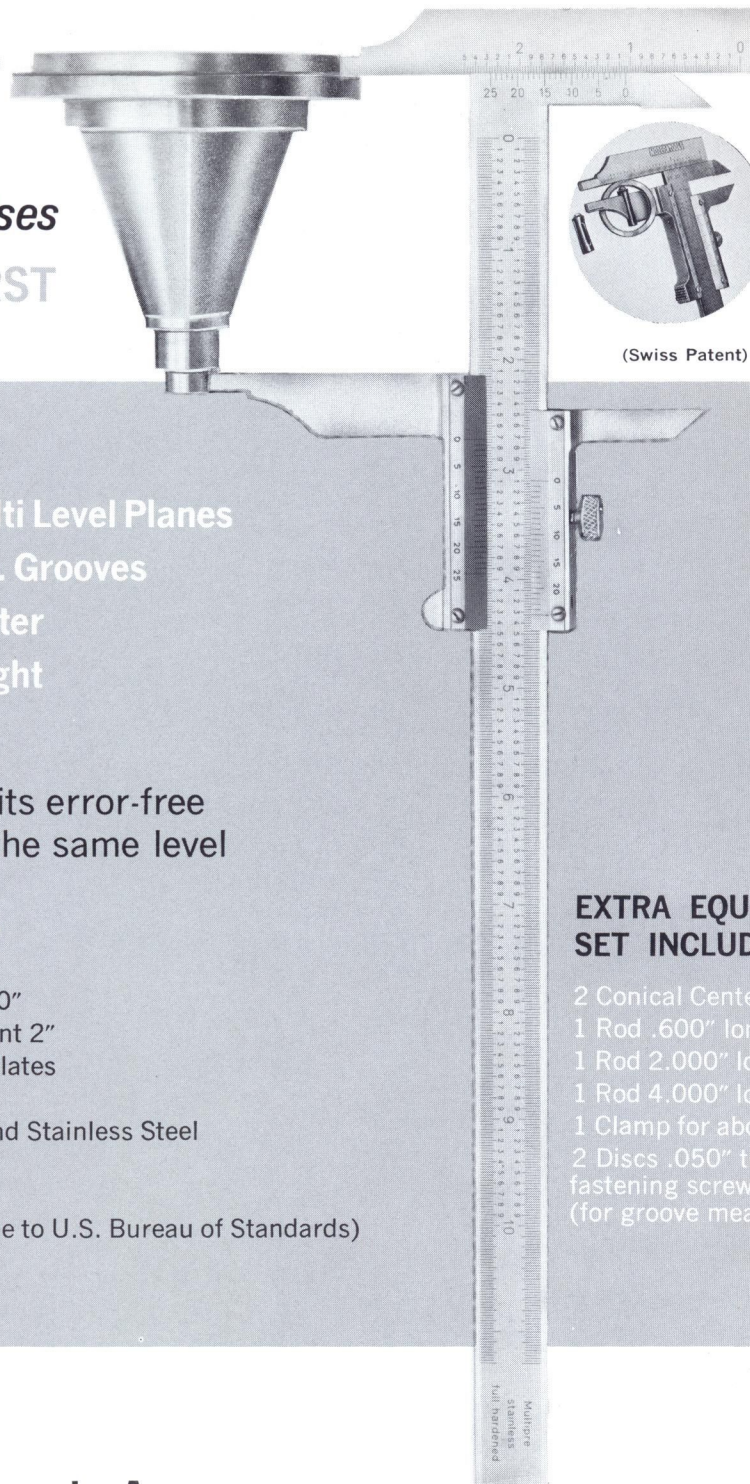
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CABLE ADDRESS: KARLNEISE



ULTRA-MET

The Caliper with a Thousand Uses

Another NEISE Moderntools FIRST



(Swiss Patent)

NEW!

FREE!
Cali-Neo
Ball ...
Our
Exclusive!

Measures:

- Between Stepped and Multi Level Planes
- Inside
- Outside
- Depth
- I.D. Grooves
- O.D. Grooves
- Center
- Height

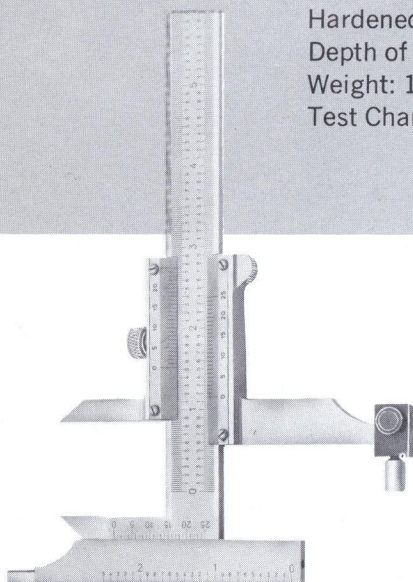
For the first time a Caliper which permits error-free measurements between points not on the same level

SPECIFICATIONS

Reading to .001"
Measuring Range: 10"
Sliding Jaw Movement 2"
Adjustable Vernier Plates
Dull Chrome Finish
Hardened and Ground Stainless Steel
Depth of Jaws: 2 3/8"
Weight: 12 oz.
Test Chart (Traceable to U.S. Bureau of Standards)

EXTRA EQUIPMENT SET INCLUDES

2 Conical Centering Points
1 Rod .600" long
1 Rod 2.000" long
1 Rod 4.000" long
1 Clamp for above
2 Discs .050" thick with fastening screws (for groove measurement)



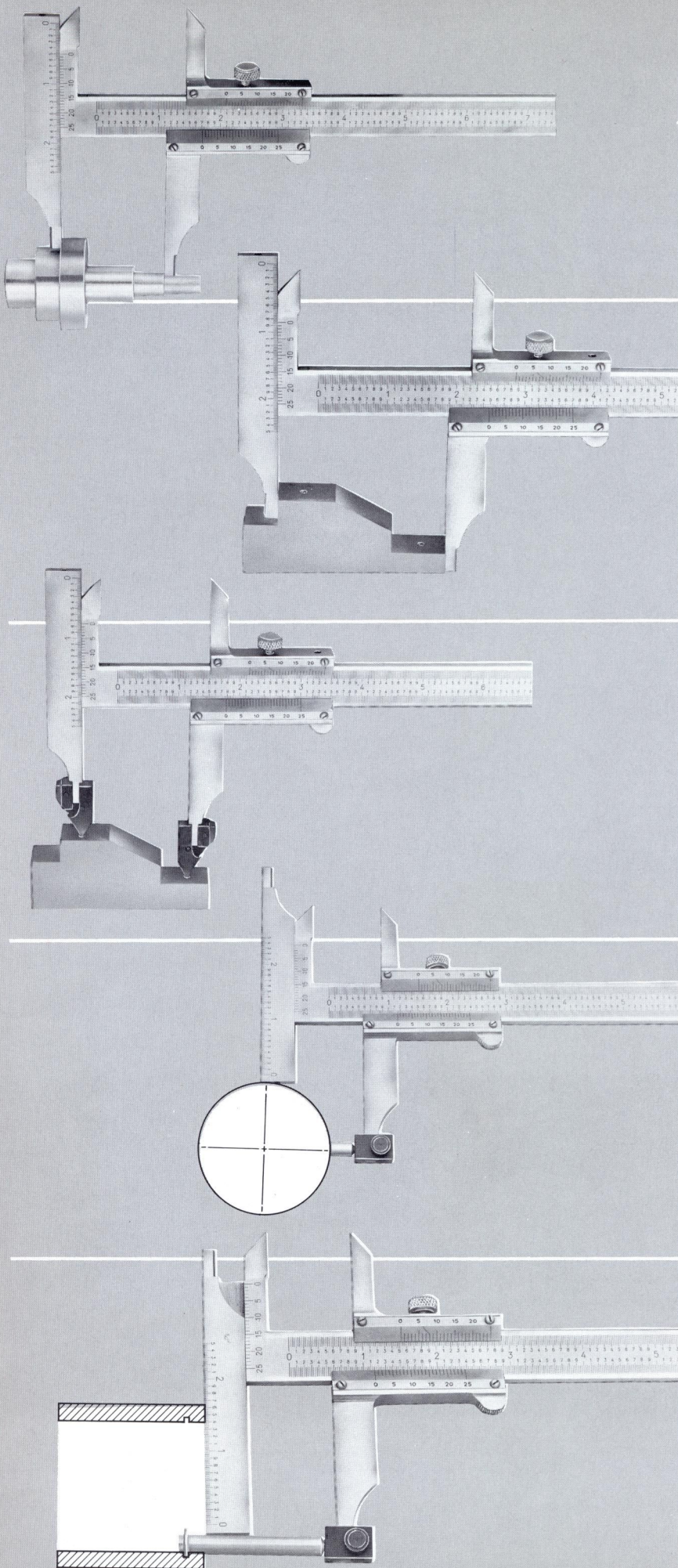
Example A:

Using ULTRA-MET as a Height Gage by reversing sliding jaw as on Example E. Attach .600", 2.000" or 4.000" extension rod with clamp. This provides means to measure internal depths and surfaces from the work table surface.

MODERNTOLS CORP *"the precision line"*

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Example B:

Measuring the exact distance between two surfaces at two different diameters.

Offset sliding jaw to the difference between the two diameters using vernier on sliding jaw.

A true measurement is made because both jaws are 90° to centerline of workpiece.

Example C:

Measuring between two faces where surfaces are on different levels.

Procedure is the same as in Example B.

Example D:

Measuring the centerline of two drilled holes on different levels (Holes may be of different sizes).

Attach conical clamps on each jaw, offset sliding jaw to accommodate variable heights, insert conical points into holes and read measurement on vernier.

Example E:

Using ULTRA-MET to set milling cutters, etc.

Reverse sliding jaw, attach .600" extension rod and clamp. Set vernier of sliding jaw to $\frac{1}{2}$ of the diameter of the workpiece.

This locates center of shaft. Rest sliding jaw on side of milling cutter and add $\frac{1}{2}$ of the thickness of the milling cutter to vernier reading, this positions the cutter in center of workpiece.

Example F:

Measuring internal O-Ring and snap ring grooves.

Attach the required extension rod with clamp, place .050" disc and screw at end of the extension rod place sliding jaw on edge of bore and measure the position of the groove.

NEW!

MODERN TOOLS

KAN TAPER-MET

DIRECT READING SINE BAR TAPER MICROMETER

EASILY! QUICKLY!

Measure and check included angle tapered workpieces in the machine! NO NEED TO REMOVE FROM MACHINE.

ELIMINATES

Error-prone and time consuming bench sine bar and job block set-ups.

PRECISION $\pm .0002''$

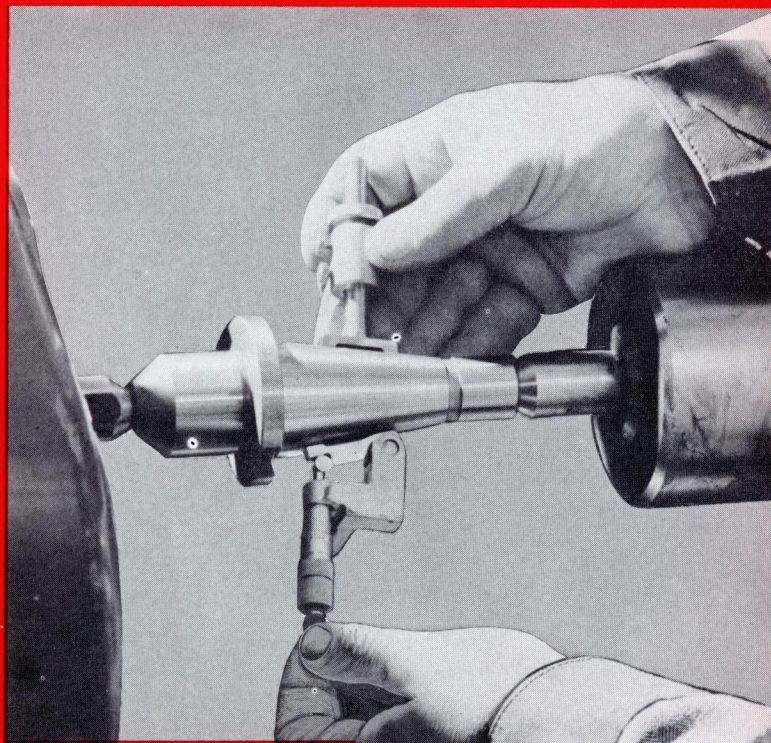
OUTSIDE DIAMETER

Measurements from 0" to 18" of all standard tapers with 8 instruments. Discrimination to $\pm .0002''$

INSIDE DIAMETER

Taper measurements from .225" to 2.650" diameters with 4 instruments. Discrimination to $\pm .0002''$

METRIC MODELS ALSO AVAILABLE.



Measurement of O.D. taper with TAPER-MET,
Direct Reading Sine Bar Taper Micrometer.

KARL A. NEISE, INC.

56-02 ROOSEVELT AVE.
PHONE: 212-446-7799

WOODSIDE, NEW YORK 11377
CABLE ADDRESS: KARLNEISE

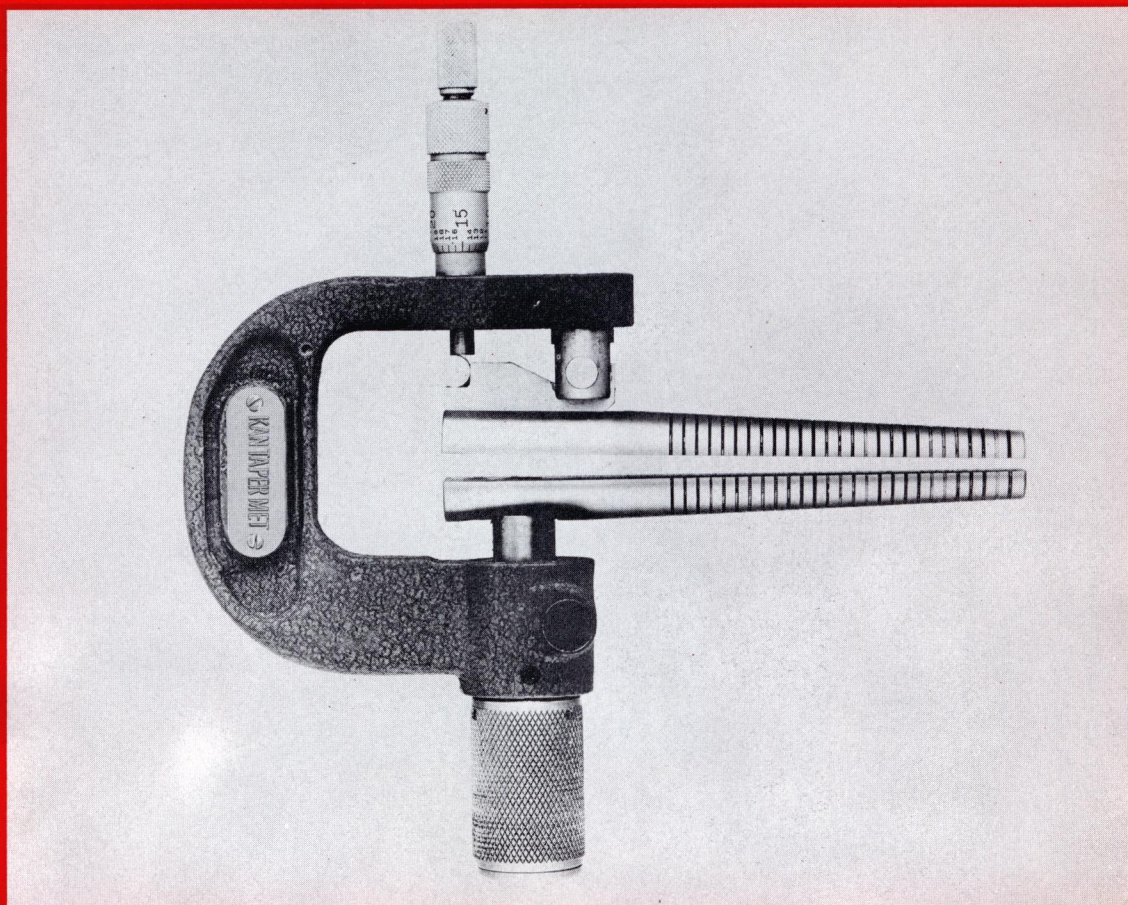
**NEISE
MODERN TOOLS**

NEW!

MODERNTOOLS

KAN TAPER-MET

DIRECT READING SINE BAR TAPER MICROMETER



INSIDE DIAMETER TAPER MET
Direct Reading Sine Bar Taper Micrometer

OUTSIDE DIAMETER SINE BAR MICROMETER

- Model # 2 measures 0" to 1- $\frac{1}{4}$ " dia. tapers
- Model # 3 measures 1" to 2- $\frac{1}{4}$ " dia. tapers
- Model # 4 measures 2" to 4" dia. tapers
- Model # 5 measures 4" to 6" dia. tapers
- Model # 6 measures 6" to 7- $\frac{3}{4}$ " dia. tapers (has 2" Sine Bar)
- Model # 7 measures 7- $\frac{1}{4}$ " to 9- $\frac{1}{4}$ " dia. tapers (has 2" Sine Bar)
- Model # 8 measures 10" to 13" dia. tapers (has 2" Sine Bar)
- Model # 9 measures 13" to 18" dia. tapers (has 2" Sine Bar)

INSIDE DIAMETER SINE BAR MICROMETER

- Model # 0 measures .225" to .875" dia. tapers
- Model # 1 measures .450" to 1.250" dia. tapers
- Model # 2 measures .650" to 1.850" dia. tapers
- Model # 3 measures 1.600" to 2.650" dia. tapers

All prices are FOB Woodside Warehouse and are subject to change without notice.

KARL A. NEISE, INC.

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